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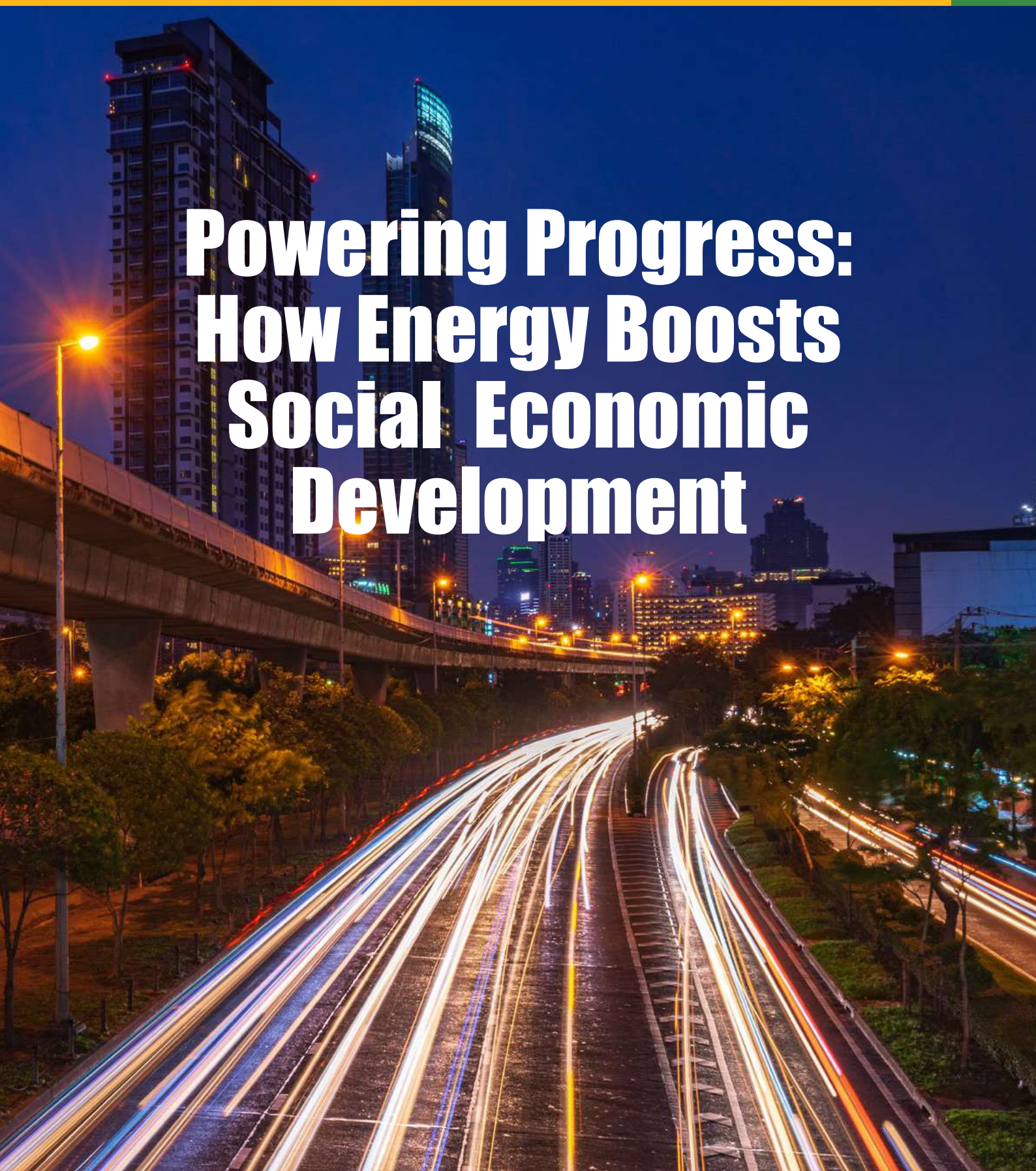
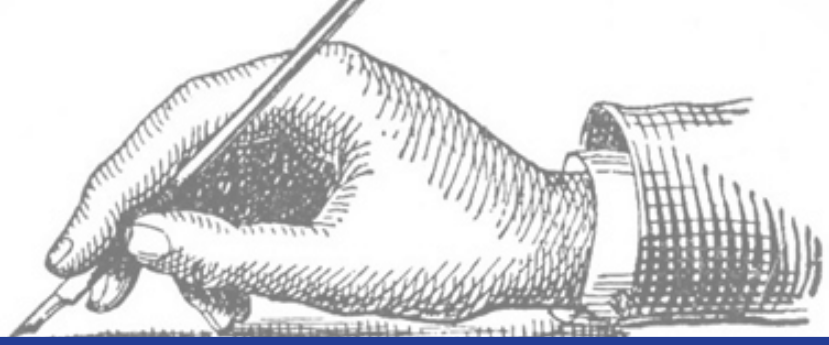
Energy & Petroleum Regulatory Authority

ENERGYSCOOP

BI-ANNUAL MAGAZINE FOR ENERGY AND PETROLEUM REGULATORY AUTHORITY STAKEHOLDERS



Powering Progress: How Energy Boosts Social Economic Development



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In this issue

Director General's Word

Dear Readers,

As we reflect on the growing demand for energy and evolving regional dynamics, data from the World Bank, the IEA Global Energy Review 2025 and Kenya's Biannual Energy and Petroleum Statistics Report 2024/25 highlight a sector grappling with rising consumption, structural transformation and the urgent need for sustainability.

In 2024 alone, global energy demand grew by 2.2%, significantly surpassing the past decade's average annual growth of 1.3%. Electricity consumption rose even faster by 4.3%, propelled by increased digitalization, the electrification of transport systems and climate-driven extremes that intensified demand for cooling. These trends underline a global shift toward electricity as a central pillar of economic activity and quality of life.

Kenya has responded to these trends with determination. Over the last two decades, the country has made significant progress in transforming its energy landscape, emerging as a regional leader in the adoption of clean and renewable energy. Today, more than 80% of the country's electricity is generated from renewable sources such as geothermal, hydro, wind and solar power. This achievement underscores our commitment to universal energy access by 2030.

Aligned with this transformation, the Energy and Petroleum Regulatory Authority (EPRA) continues to champion forward-looking initiatives such as the Last Mile Connectivity Project, green hydrogen development and the rollout of decentralized mini grids to expand access in underserved communities. These projects signal a strategic shift toward a more inclusive and climate-resilient energy future.

We are proud of the progress made, but we also recognise that the work is far from done. Clean energy is not just about energy generation, it is also about safety, access and affordability. That is why we have launched the Kaa Safe Mtaani campaign, a nationwide public awareness initiative focused on promoting safety in the use of LPG, petroleum and electricity sectors.

To sustain this momentum, the government, private sector, research institutions and communities must work together to unlock our full potential. Thank you for your continued support and now I welcome you to read more in this edition of the Energy Scoop.

Daniel Kiptoo Bargoria, MBS, OGW

Director General

Kaa safe mtaani campaign

By Victor K. Bett

The Kaa Safe Mtaani (KSM) campaign is a nationwide initiative by EPRA aimed at promoting a culture of safety and awareness in the energy and petroleum sectors. It seeks to educate the public and stakeholders on the safe handling of energy products, including liquefied petroleum gas (LPG), petroleum and electricity thus reducing associated accidents, injuries, and/or fatalities. The campaign addresses issues such as illegal fuel siphoning, unauthorised electrical connections, and improper handling of LPG cylinders, with emphasis on behavior change, compliance with safety standards and collaboration across the sector. The campaign is aimed at curbing and mitigating energy-related risks while supporting Kenya's economic and social development goals.

On the 13th March, 2025, EPRA launched the KSM campaign during the National Stakeholder Conference held in Nairobi. KSM pledge had the following six (6) undertakings:

Commitment to safety standards by providing policy and strategic direction on security and administration in order to attain the highest safety and regulatory standards in the energy and petroleum sector

Active participation in public education and awareness activities to improve safety knowledge

Implementation and advocacy for industry best practices to minimize hazards;

Supporting transparency and accountability by fostering an open culture of reporting and information sharing to improve industry safety.

Collaboration for impact by partnering with stockholders to develop and execute impactful safety initiatives.

Taking initiatives to address actions on reported safety incidents in the energy and petroleum sector.

Here is a poetic piece anchored into the KSM campaign.

Twajibwaga uwanjani, hamasisho kuwapeeni,
Kwa kuwa twawathamini, wateja wetu hakika,
Mwelekeo twawapeeni, kuhusu zetu bidhaa,
EPRA yawahimiza, Kaa Safe Mtaani.

Usalama ni muhimu, vigezo zingatieni,
Mnaponunua gesi, chunguzeni wauzaji,
Hakikisheni wameidhinishwa, msijeuziwa bidhaa ghushi,
EPRA yawahimiza, Kaa Safe Mtaani.

Silinda yoyote ya gesi, iwe na jina la kampuni,
Muuzaji akupimie uzito, na risiti akupe,
Tena akuelekeze, jinsi ya matumizi,
EPRA yawahimiza, Kaa Safe Mtaani.

Gesi ya petroli, twaitumia kila kukicha,
Iweke mahali safe, pasipo moto au mafuta,
Valve ifunge vizuri, pasiwe na pa kuvuja,
EPRA yawahimiza, Kaa Safe Mtaani.

Mafuta ya taa na petroli, nayo hatari sana,
Kuzuia mlipuko, usiyahifadhi palipo moto,
Yatumie kwa uangalifu , kujiepusha na mkasa,
EPRA yawahimiza, Kaa Safe Mtaani.

Utakapohitaji stima, kuunganishiwa nyaya za umeme,
Utakayempa kazi hiyo, awe na leseni ya EPRA,
Ufungaji nyaya bila utaalam, umesababisha maafa,
EPRA yawahimiza, Kaa Safe Mtaani.

Soketi ikiwa na hitilafu, sijifanye fundi wa stima,
Piga simu kwa wataalamu, washughulikie swala hilo,
Situmie vifaa vibovu, kwa usalama wako na wengineo,
EPRA yawahimiza, Kaa Safe Mtaani.

Panapotokea ajali, za lori za mafuta,
Wakenya twawatahadharisha, msikimbilie kuchota mafuta,
Jitengeni na maeneo hayo, kujiepusha na mauti,
EPRA yawahimiza, Kaa Safe Mtaani.

Tuishipo mitaani, maisha panda shuka,
Ila usalama wetu, sote tuwawajibikie,
Gesi, mafuta, na stima, vyote watumishi bora,
Twaondoka tukisisitiza, Kaa Safe Mtaani.

The campaign has been rolled out, with regional forums serving as the hub for enhanced collaborations and partnerships among state and non-state actors, including law enforcement officers, community and faith-based organizations. The rallying call throughout these sessions being centered on energy and petroleum safety.

The campaign seeks to boost EPRA's role of enhancing safety in Kenya's energy and petroleum sectors through stakeholder sensitization and collaboration. EPRA seeks to pave the way for a safer future for communities, enterprises, and policymakers. Therefore, this is more than just a campaign, it is a call to action!

The writer is a Manager, Commercial Services Department at EPRA

The rise of energy entrepreneurship in Kenya and Africa

By Sharon Nkatha

According to the Nordic Development Fund Report 2025, over 600 million people in Africa lack access to electricity, a figure that represents a major obstacle to economic development, education, healthcare, and economic opportunity. In Kenya alone, despite notable progress, 25 percent of rural households have no power. While national utilities and grid expansion programs have played a critical role in increasing access, it has become increasingly clear that centralised power systems cannot reach every corner of the continent fast enough.

This has paved the way for a new era of energy entrepreneurship, where innovative, decentralised solutions are transforming how electricity is produced, distributed, and consumed. From solar mini-grids to Pay-As-You-Go systems , Kenya is at the forefront of a grassroots energy revolution that offers powerful lessons for the rest of the continent.

Expanding grid infrastructure is a costly and time-intensive endeavor where, according to the World Bank, rural grid extension in sub-Saharan Africa costs between $10,000 and $20,000 per kilometre and often takes years to implement. For sparsely populated regions such as Northern Kenya, grid-based electrification becomes even more economically unviable.

Additionally, Kenya's national grid, while robust compared to regional peers, faces challenges of intermittency, voltage fluctuations, and limited coverage in remote areas. This has created an urgent need for alternative, flexible solutions, especially in off-grid counties like Marsabit, Samburu, and parts of Kilifi.

Enter the energy entrepreneur - individuals and startups leveraging innovation, mobile money, and renewable technology to bridge the energy access gap. In Kenya, companies are pioneering solar mini-grids, solar home systems (SHS), and biogas installations designed specifically for local communities.

One notable model is the Pay-As-You-Go (PAYG) approach, where users prepay for electricity via mobile money platforms like M-Pesa. This removes the barrier of high upfront costs and enables households to pay only for what they use. This model has seen widespread adoption in Kajiado, Bungoma, and Kitui, and continues to expand rapidly across the country.

Startups are also experimenting with community ownership models, where residents co-invest in their local energy infrastructure. These systems not only increase buy-in and trust, but also generate jobs, particularly for women and youth trained to maintain and operate systems.

Financing remains a hurdle. While donor funding and government subsidies have supported electrification efforts, innovative financing mechanisms are gaining traction: Impact investors and climate finance funds are investing in clean energy startups with measurable social returns; Carbon credits are being used to finance clean cookstoves and off-grid solar, particularly in western Kenya; crowdfunding is opening up avenues for diaspora and local investors to fund community-based projects.

Kenya is also benefiting from results-based financing (RBF) schemes backed by institutions like AfDB and GIZ, which offer cash incentives for each household connected to clean energy. Advancements in battery storage, AI-powered grid management, and remote diagnostics are improving the reliability and scalability of decentralised systems. For instance, smart mini-grids with usage analytics can automatically balance load, detect theft, and optimise maintenance schedules.

Meanwhile, peer-to-peer energy trading platforms are emerging, enabling users in rural areas to sell excess solar energy to neighbors, creating a localised energy marketplace. These technological shifts, combined with mobile money integration and blockchain-backed energy audits, are redefining how Africans access and manage power. The relevant policies complement these.

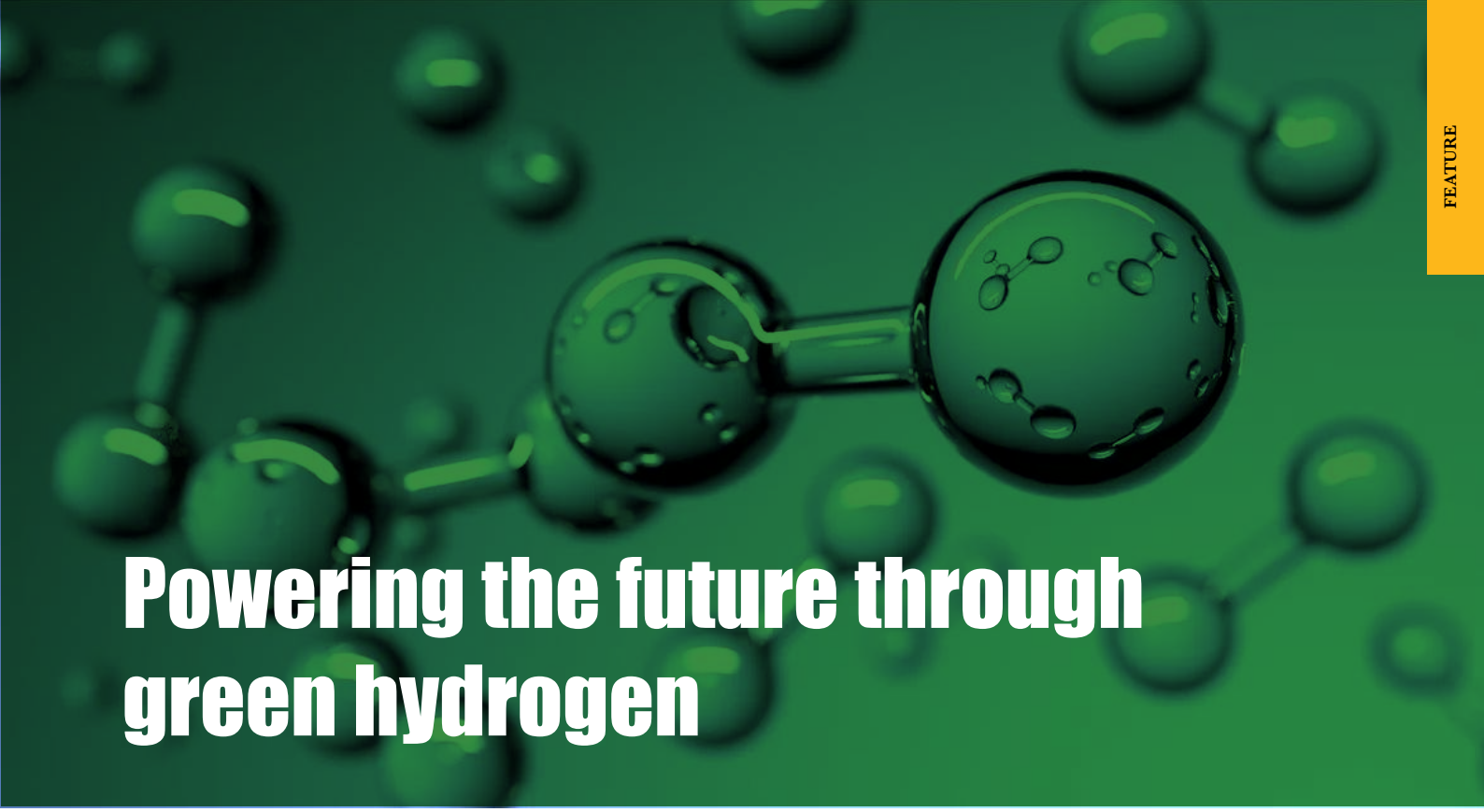
Kenya has made progress in establishing an enabling regulatory framework for off-grid energy. The Mini-Grid Policy (2021) and the Energy Act (2019) provide guidelines for private sector participation, licensing, and interconnection with the main grid. However, challenges remain. Bureaucratic licensing procedures, tariff uncertainty, and limited access to consumer financing still hinder broader uptake. Continued support from EPRA, REREC, and county governments is essential to streamline policies, build investor confidence, and protect consumers.

Kenya's progress offers a blueprint for Africa. With the right mix of entrepreneurship, financing, and policy, decentralised energy systems could electrify over 265 million people in Africa by 2030, according to IRENA. This would spur industrial growth, education, and digital inclusion across the continent.

The future of Africa's energy is not just in large dams or fossil fuel grids. It lies in village-based microgrids, solar rooftops, and smart meters powered by mobile money and AI. It lies in the hands of entrepreneurs, women, youth, and innovators, creating tailored solutions for their communities.

In this moment of transition, energy entrepreneurship is not just an alternative, it is a necessity. And with the right support, it could be the key to unlocking inclusive, sustainable energy for all.

The writer is a Renewable Energy Student at the Cooperative University of Kenya.



Powering the future through green hydrogen

By Hilda Rutere

Green hydrogen is gaining traction as a sustainable alternative to fossil fuels in powering transportation, industry, and power generation. It is more attractive due to its proven potential to reduce greenhouse gas emissions and mitigate the effects of climate change. Obtained from renewable sources like wind, solar or hydroelectric electricity, through electrolysis, it offers a low carbon emissions alternative to fossil fuels, making it an environmentally friendly solution.

Kenya views development of a robust Green Hydrogen subsector as the final path to realising 100 percent generation of electricity from renewables, that currently stands at 81.3 percent. This renewable energy is sourced from hydropower, geothermal, solar, wind and biomass.

In September 2023, reaffirming its commitment to sustainability, Kenya launched its Green Hydrogen Strategy and Roadmap during the Africa Climate Summit. This strategy, designed to leverage Kenya's abundant renewable resources, focuses on four key pillars: improving the balance of payments; strengthening food security and climate resilience; promoting green industrialisation and decarbonisation; and mobilising strategic investments.

Kenya aims to secure at least $1 billion in direct investments by 2030, creating at least 25,000 direct jobs between 2028 and 2032, and avoiding at least 250,000 tonnes of CO2 emissions annually by 2030. A significant milestone will also be the production of green shipping fuels by 2030, opening new avenues for sustainable maritime transport (source)

To bring this vision to life, the government has partnered with stakeholders across both public and private sectors to implement the Green Hydrogen Strategy road map. The Ministry of Energy and Petroleum has established a dedicated Secretariat and a Program Coordination Committee (PCC) to drive the agenda forward, review investment proposals and spearhead awareness and capacity-building efforts.

In May 2024, EPRA published the Kenyan's guidelines on Green Hydrogen and Its Derivatives, to promote the production and safe handling of green hydrogen. This is a step in boosting transition to renewable energy. Beyond national ambitions, Kenya's green hydrogen efforts contribute to broader global goals including the United Nations Sustainable Development Goals (SDGs), the Paris Climate Agreement and Africa's Agenda 2063.

According to EPRA's Bi-Annual Energy and Petroleum Statistics Report (2024/2025), the committee has received several expressions of interest for green hydrogen development which are currently at various stages of implementation. This growing interest reflects the sector's strong potential to reduce greenhouse gas emissions by 32 percent by 2030 and achieve Net Zero by 2050.

Realising the green hydrogen vision will require navigating several hurdles and increasing collaborations between different sector players. The Government will have a critical role to play by creating conducive environments through subsidies, tax incentives, public-private partnerships and clear long-term regulatory standards. The private sector must adopt a visionary approach and invest in early projects that lay the foundation for a robust hydrogen economy. Meanwhile, research and development institutions must continue to push technological boundaries to improve efficiencies, cut costs and unlock new applications.

Overview of recent developments in the global and Kenyan energy sectors

By Dorcas Isaboke

The global energy sector is undergoing a shift, marked by demand growth, record renewable installations and evolving regional dynamics. Data from the World Bank, IEA's Global Energy Review 2025 and Kenya's Biannual Energy & Petroleum Statistics Report 2024/25 highlights a sector dealing with rising consumption, structural transformations and the need for sustainability.

In 2024, global energy demand rose by 2.2 percent, higher than the past decade's average annual growth of 1.3 percent. Electricity demand increased by 4.3 percent, driven by expanding digitalisation, electrification of transport and extreme weather increasing cooling needs. Nearly all of this new electricity demand was supplied by low-emission sources mainly solar, wind, and nuclear. China, India and emerging economies led the consumption surge, accounting for over 80 percent of global energy growth. Yet, advanced economies, after years of stagnation, also returned to positive growth, with the United States registering the third-largest absolute demand increase globally.

Renewables dominated capacity growth, accounting for 38 percent of the new energy supply. Notably, 81.3 percent of new electricity generation globally in 2024 came from clean sources. Meanwhile, solar and wind collectively overtook coal and gas generation for the first time in the European Union. In China, renewables reached nearly 20 percent of generation, while in the U.S.A, solar and wind accounted for 16 percent.

Fossil fuels share of global energy demand dipped below 30 percent, a historic first since it peaked at 46 percent in 1973. The total oil demand still rose slightly (0.8 percent), driven mainly by the aviation and petrochemical sectors. Coal demand grew by one percent, largely from cooling needs during heatwaves in China and India. Natural gas saw the fastest growth among fossil fuels at 2.7 percent, fuelled by rising industrial use in emerging Asian markets.

Emissions growth slows, but climate risks remain. Global CO_2 emissions from energy rose by 0.8 percent, a slower rate than 2023, but still a troubling trend. Record-breaking adoption of clean energy technologies prevented an estimated 2.6 billion tonnes of additional emissions. Energy intensity improvements, critical for decoupling emissions from economic growth, slowed to just one percent. If the world aims to meet climate targets, much stronger efficiency gains are needed.

Zooming in on Africa, Kenya's performance stands out. As outlined in the Kenya Energy Policy Review 2024, the country has become a renewable energy powerhouse in East Africa, with over 81.3 percent of its electricity generation coming from clean sources. Kenya's electricity access rate hit 79 percent in 2023, putting it on track for universal access by 2030. Urban electrification has already reached 100 percent, while innovative projects like the Last Mile Connectivity Project have slashed rural electricity exclusion rates.

However, affordability challenges persist. Kenya's electricity prices remain among Africa's highest, driven by inflation, subsidy cuts and currency devaluation. New tariff structures introduced in 2023 aim to ease costs for low-income households.

Kenya is also pushing ahead on e-mobility. The country introduced discounted electricity tariffs for electric vehicle (EV) charging in 2023. Meanwhile, Autogas (LPG for vehicles) is gaining traction, with the government issuing permits for new autogas stations.

In cooking fuels, Kenya has made major strides with clean cooking access increasing from 10 percent in 2013 to 31 percent in 2023. Two-thirds of households still rely on polluting fuels like firewood and charcoal.

Kenya's efforts at regional electricity integration also advanced. In December 2024, Kenya energised a new 400kV transmission line with Tanzania, complementing existing links to Ethiopia and Uganda. This aligns with Africa's broader goal of building the Africa Single Electricity Market, creating continent-wide energy trade. Such infrastructure not only stabilises national grids but also supports ambitions for a greener, more interconnected energy future.

In Kenya, diversification strategies, from local geothermal development to energy storage solutions, are critical. The Biannual Energy & Petroleum Statistics Report 2024/25 points to steady investments in solar mini-grids and captive power systems, particularly for industrial consumers.

Participatory communication key to sustainable energy transition in Kenya

By Esther Gicheru, MPRSK

Kenya has gained international acclaim for its steady transition to renewable energy on matters of electricity generation. Renewable energy sources contribute 81.3 percent of power to Kenya's national grid. These sources include geothermal, solar, wind, and hydropower, with about 40 percent coming from geothermal resources (EPRA Biannual Energy Statistics Report 2025). However, beneath this acceleration towards green energy and reduction in carbon footprint lies a deeper challenge; that of ensuring that all citizens are part of this transformation not as recipients of energy policies but as co-creators of the solutions.

Outside the electricity sector, fossil fuels still dominate the energy landscape, powering transport and manufacturing industry. Additionally, over 70 percent of Kenyan households rely on charcoal, firewood, and kerosene for cooking. This disparity highlights the pressing need for a thorough and inclusive approach to communication that encourages a just energy transition across all sectors.

The Commonwealth Sustainable Energy Transition (CSET) Agenda describes an inclusive energy transition as one that advocates and promotes equitable measures that recognise and address in a meaningful way the impact on economies, communities and industries'. To achieve this, participatory communication emerges as a vital yet often underutilised tool, one that can catalyse Kenya's journey toward achieving 100% clean energy by 2030. It can help narrow and close the knowledge gap by translating complex energy concepts into relatable narratives that reflect everyday realities.

Kenya's energy policies outline the country's ambition to generate 100 percent of its electricity from clean energy sources by 2030 and to bring electricity to rural households by extending the national grid to underserved areas.

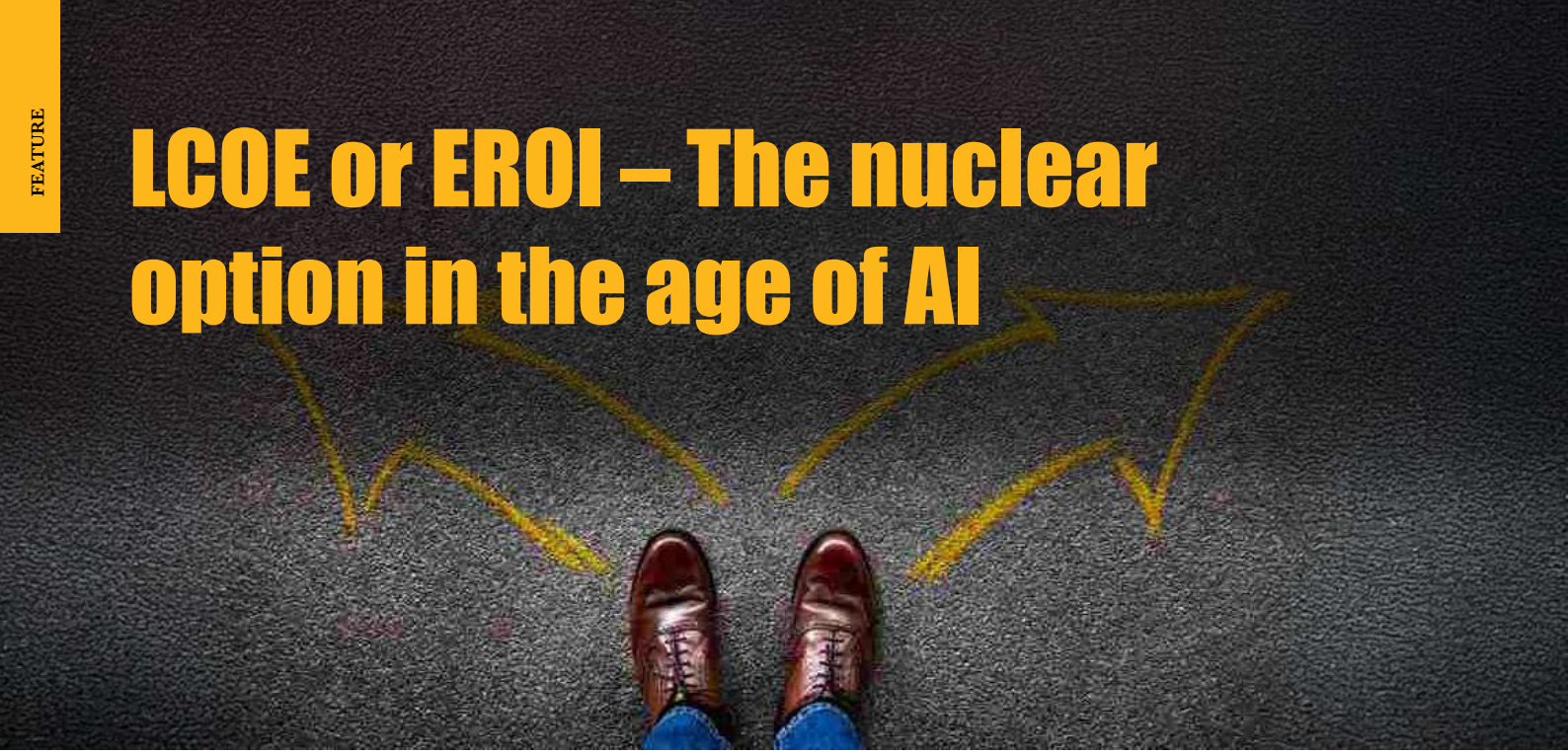
To create better public understanding and dispel common misconceptions, communicators must craft localised, relatable narratives. These narratives connect energy choices to real-life benefits such as improved health and cost savings.

Additionally, participatory communication can enhance public participation, build trust, and support policy implementation. Platforms like community radio, theatre, and digital media campaigns in local dialects are some of the avenues for enabling citizens to engage, pose enquiries and collaborate in creating sustainable energy solutions.

As the country seeks to decarbonise transport, modernise cooking, and green its industries, communication must be recognised as a strategic enabler to accelerating progress towards regional, national, and international targets. Ultimately, the energy transition is not just about technology, it is about people. And people can only act when they are informed, included, and inspired. Participatory communication is the bridge that connects this ambition to action, and policy to the people.

The writer is a seasoned development communication specialist currently working at the Micro and Small Enterprises Authority.

LCOE or EROI – The nuclear option in the age of AI



By Francis Agar

Suppose all of Kenya's electricity generation capacity was used to produce photovoltaic (PV) panels, then this first generation of panels used to manufacture a second generation of panels and so forth so that a self-sustaining "renewable" chain reaction gets underway. Within a couple cycles, it will be evident that such is impossible. For instance in China, where renewable energy infrastructure is not manufactured using renewable energy, we would have to turn to thermal sources.

Such is one of the many reasons why Levelised Cost of Electricity (LCOE) which compares apples to oranges is targeted for replacement by Energy Return on Investment (EROI) which captures less subjective factors thus offering a better assessment of a technology's viability.

This discussion on LCOE vs EROI is global. Despite wings supposedly clipped by embargos, China has been releasing low-cost Large Language Models (LLM) alternatives to Silicon Valley's multi-billion dollar behemoths. Some say this confirms Wirth's law which states that in the West software gets slower faster than hardware gets faster. For network "bros" such is also indicative of the bloat in modern programming languages like R and a source of nostalgia for "the good old days" when coding was done on stone tablets like those Moses was wielding as he descended Mount Sinai.

However, China's disruptive potential is neither the substance of the Torah nor proof of theories conjured up in basements where one's only audience is data switches. Upon understanding that there is no such thing as a prosperous low-energy intensity society, China used factors like grid integration costs, ancillary services, transmission, distribution costs, reliability and the entire life cycle considerations, to convert LCOE into Levelized Full System Cost of Electricity (LFSCOE). Informed by this China was at a point either practically printing 1000 MWe coal-fired capacity every week or licensing nuclear plants at proportional rates.

A decade after implementing "Energiwende" later, two out of every three businesses have fled Germany citing the prohibitive costs of energy imports from nuclear-powered France and natural gas from Russia. Meanwhile, with several under construction and/or operational in the world, China's Huolong-One is now the most popular light water technology. Courtesy of "cheap" & "safe" Operating Expenses of electricity that need no back-up. Shenzhen is eating Silicon Valley's lunch.

Those proselytising LCOE cite cost overruns and delayed construction in a one-size-fits-all criticism of the nuclear option deliberately obfuscating that these are exclusive to the West. To hide these facts "green bonds" and "Regulated Asset base models" are brandished as solutions yet even without them, nuclear's scalability is on display in China. Besides these ballooning costs in the UK and US, at places like Hinkley Point C and Vogtle, were from indirect expenses of an atrophied labour force whose productivity per unit cost is a factor of ten lower than what the industry expected.

The Kenyan government's derisking of the geothermal potential now powering Microsoft and G42's data centre also captures how arbitrary LCOE figures are relying on government intervention.

While the "AI Policy Blueprint for Africa" by Google promises a $30 billion economic boost through AI integration locally, the African Union's "Continental AI Strategy" identifies the need for electrified infrastructure needed for AI's growth. Our Silicon Savannah urgently needs to recalibrate its priorities to include a diversified mix inspired by pragmatism and practicality. When everyone with a pulse and purse is keen to invest in AI, it is not the time to double down on an unstable grid guided by LCOE dogma.

Unlocking Kenya's full renewable energy potential through battery energy storage technology

By Liz Mubari

As the country accelerates towards its goal of having 100 percent of its energy coming from renewable energy sources by 2030, the challenge in maintaining grid stability while introducing more intermittent sources like wind and solar into the energy mix need to be addressed. These energy sources are deemed Variable Renewable Energy sources (VREs) that affect grid stability and reliability because their fluctuating output aka' the well-known "duck curve" phenomenon does not always align with demand.

For example, solar generation surges during the day but dies off at night and is ably replaced by wind power peaks at night when the demand is low. But such a scenario is not applicable for geothermal generation that emits pressurised steam that drives turbines and cannot be stopped as this can compromise well integrity. As a result the geothermal steam is wastefully vented and cannot be recovered for reinjection making the geothermal reservoirs lose pressure and heat, impacting their long-term sustainability.

To address this challenge, the Ministry of Energy and Petroleum (MoEP) through the Kenya Green and Resilient Expansion of Energy (GREEN) Program has conducted feasibility studies that indicate the critical need for integration of Battery Energy Storage Systems (BESS) into the national grid. Utility-scale battery storage systems can support frequency regulation and allow for more integration of VREs. This is by storing surplus energy during low-peak periods and releasing the same when demand peaks. This could eliminate the need for expensive fossil-based peaking plants. In addition to stabilising the grid, these large-scale BESS can provide energy arbitrage and black-start capabilities to restart parts of the grid during nationwide blackouts.

Four locations have been identified across the grid network for the deployment of 100 MW BESS: Embakasi in Nairobi, Olkaria in Rift Valley, Muhoroni in Western and Kipevu in Coast region. Battery storage has the potential to prevent load shedding in these high demand regions, particularly in Western Kenya where transmission projects are still being implemented. KenGen has already issued an Expression of Interest for a feasibility study that will re-confirm these sites for deployment.

In addition to the 100 MW, KenGen is also spearheading BESS integration through another 3MW/4.5MWh project at the Seven Forks Dams. These moves align with Kenya's power plan detailed in the Least Cost Development Plan (LCDP) 2024-2043 of expediting the development of 250MW of BESS by 2026.

Despite this momentum, there are policy gaps and paradoxes in the regulatory framework. The Energy Act of 2019 recognises the value of storage but does not outline how it fits into the generator-distributor model. There are currently no tariff structures to incentivise BESS investments, nor are there clear frameworks for remunerating developers who provide ancillary services like voltage and frequency support.

The Feed-In-Tariff Policy 2012 has provided tariffs for renewable energy technologies but does not cater for energy storage. This allows developers to absorb the full financial risk, making the revenue models for BESS ambiguous.

In December 2024, MPs backed a proposal by the MoEP that mandated the installation of BESS for all new solar and wind farms to ensure consistent power supply during peak demand. However, the lack of clear pricing and compensation mechanisms for private sector participation in BESS deployment continues to make negotiations of Power Purchase Agreements (PPAs) for hybrid projects with battery storage complex.

Kenya's forthcoming National Energy Policy 2025-2034 indicates that the government has committed to address these issues. The plan aims to develop compensation mechanisms for ancillary services to the grid within one year. Guidelines for energy storage and a regulatory framework that allows private sector participation, will be introduced within two years. Technical standards for the local design of BESS installations are expected within three years, while innovative funding models to finance the high initial battery costs are to be developed within five years. These reforms will unlock investments and accelerate storage deployment at scale.

BESS integration will foster economic growth through local manufacturing hubs creating green jobs. The adoption of BESS will also support the goals of the Renewable Energy Transition Accelerator initiative. This aims to promote sustainable energy solutions across the entire continent. Policies and incentive structures such as tax breaks or subsidies that support this integration can unlock future investment and make this a viable solution to realise Kenya's full renewable energy potential.

The writer is a MSc Electrical Engineering Student at the University of Nairobi.

One-on-one

with Eng. James Njoroge, General Manager, Production, Maintenance & Facilities, Isuzu East Africa

Isuzu East Africa General Manager, Eng. James Njoroge speaks at the Issuance of Energy Management Compliance Certificate Ceremony in Nairobi on 29th May 2025.

By Dennis Chacha

On Thursday, 29th May 2025, EPRA presented Energy Management Compliance Certificate to Isuzu East Africa Limited. The award serves as recognition of the commitment the company has demonstrated in complying with the Energy (Energy Management) Regulations 2012. These regulations have been updated.

In an interview with the Energy Scoop, Eng. James Njoroge, General Manager, Production, Maintenance and Facilities at Isuzu East Africa Limited shares insights into the company's energy management journey.

Q1. What is the motivation behind the company's uptake of the Energy Management practices?

First, Isuzu EA is committed to and has entrenched sustainability agenda in its Mid Term Plan. Sustainable use of energy resources and indeed protection of the environment for the current and future generations forms a key pillar of this agenda. Sustainable Energy use is closely intertwined with environmental protection. Secondly, as a manufacturing company, energy is a major contributor to our cost of production. Hence to control our cost of production and enhance our competitiveness, we must minimise our cost of energy amongst that of other inputs of production. Isuzu EA recognises the important role energy management practices play in controlling energy consumption and energy costs. Thirdly, energy management is a regulatory requirement. Being a responsible corporate citizen that has entrenched sustainability, Isuzu East Africa takes regulatory compliance as the barest minimum standard of behavior.

Q2. When did Isuzu begin mandatory energy management practices in the company?

Isuzu East Africa has long practiced energy management. As early as the 1990s, the then General Motors East Africa, the predecessor of Isuzu East Africa, was already practicing energy management. By the early 2000s, long before energy management became a compliance obligation, the company had already instituted an Energy Management Committee and was conducting energy audits, implementing Energy Conservation Measures (ECMs) and participating in the KAM Energy Management Award Schemes. This culminated in the company winning the overall energy management award in the year 2005. The energy conservation culture has grown and become entrenched in our culture and practices ever since. With the enactment of the Energy Management Regulations, 2012, the company seamlessly transitioned to the regulatory framework since the requirements were already being done on a voluntary basis.

Q3. Has there been any resistance to the idea to enforce energy management practices in the company and how has Isuzu handled the resistance?

There was minimal overt resistance to adoption of energy management practices at Isuzu East Africa. This was mainly due to many years of voluntary energy management practices. However, some people adopted the practices earlier than others as is expected of any innovations (refer to innovation adoption process). Awareness, education, training, recognition and reward schemes are some of the tools that Isuzu EA used to hasten and widen adoption of these practices.

Q4. What measures has the company put in place to ensure efficient utilisation of energy?

At Isuzu East Africa, we have implemented many ECMs. But even before talking about ECMs, it is important to highlight the efforts to develop a supportive culture amongst employees towards efficient use of energy. First, we have created awareness

amongst the entire workforce on the importance of efficient use of energy. This has helped in entrenching the best behavioral practices that result in energy efficiency without much expenditure. Practices like switching off lights when leaving your room or workplace. Shutting down machines and equipment as soon as you stop using them and during production breaks. Reporting air and water leaks as soon as you notice them for immediate repair, not using compressed air to blow dirt and dust etc. In addition, employees have been trained to identify waste and suggest ways to correct them - which is supported by a practical recognition and reward scheme.

In addition, Isuzu East Africa has set up and trained an Energy Management Committee that conducts regular energy observation tours (Ashrae level 1 audits) every quarter across the whole facility. The tours are used to identify opportunities for energy savings. These opportunities are then logged for implementation.

Isuzu East Africa also conducts mandatory energy audits which help to identify ECMs for implementation.

Resulting from the above and other opportunity identification approaches, Isuzu East Africa has implemented several ECMs as follows:

- Installation of skylights on major roofs such that there is sufficient natural lighting to be used instead of artificial lighting.
- Installation of timer control system to minimize time of use on lighting systems for large areas.
- Installation of automatic water drains on compressed air reservoir tanks that purge moisture without wasting compressed air.
- Installation of variable speed drive compressors instead of fixed speed compressors
- Replacement of fluorescent lighting systems with lower wattage LED lamps with equivalents illumination levels
- Regular compressed air system inspections to identify and repair leaks as they are noticed.
- Innovations that improve productivity thus reducing energy consumed in producing a unit of product-such as automating oven timing system that reduced baking time by about 5 minutes per unit, kaizen activity for the FVZ model that improved productivity by 2 units per working cycle.
- Replacement of ordinary taps with both sensor type and timed push taps that reduced water usage and hence reduced energy required to pump water for use.
- Replacement of ordinary urinals with both sensor type that reduced water usage and hence reduced energy required to pump water for use.
- Innovations that enabled drying three cabins per oven run rather than one that reduced both the fuel and electricity required to dry the baked cabins.

Q5. What challenges Isuzu has Isuzu faced while implementing the energy management practices?

The first challenge is the continued escalation of electricity and fuel prices. Because of the price escalation, the energy expenditure is still growing, though marginally, despite the reduction in actual energy consumption.

The second challenge is in measuring and verifying the savings made from the implementation of ECMs. This challenge stems from structural differences in recognition of savings between standard accounting tools and verifying energy savings using the internationally accepted protocols.

The third challenge is the high-cost difference between conventional and certified energy efficient equipment, especially initial installation cost.

Finally, another challenge is in differentiating genuine high quality energy efficient equipment from fake and low-quality ones, especially with the proliferation of many brands being marketed as energy efficient when in fact they are not.

Q6. What are the benefits the company has tapped from implementing the energy management practices?

Isuzu East Africa has enjoyed multiple benefits from implementing energy management practices, including;

1. Reduced energy costs of production. In 2024, the company saved a total of 16M; 8.1M from the ECMs and an additional 8.73M from installing a new Solar PV system.
2. Protection of the environment against climate change. In 2024, the company saved 137 Tons of carbon dioxide from the ECMs.
3. Improved corporate image and positive publicity.
4. Improved market share - we are better able to sell to our customers who have also become environmentally conscious.

Q7. What are your expectations going forward as far as energy management is concerned?

Isuzu East Africa will continue to embrace energy management practices and strive to get better in energy management. We are now working on increasing the percentage of renewable energy in our energy mix from the current 33-35% to 50-60%. The overall goal is to run a sustainable business that conserves the environment for future generations. In addition, it is our expectation that the cost of high quality energy efficient systems will reduce relative to that of standard equipment to make the choice of energy efficient systems easier to make from a business standpoint.

Q8. Would you encourage companies and households to embrace energy management practices?

Yes, I would. There are very substantial advantages of embracing energy management practices in both industry and households. First, they get to minimize their costs. Secondly, there will be more energy available for other users without additional investment in generation, transmission and distribution infrastructure. Thirdly, we get to protect the environment by sustainably using current resources. Fourthly, they get to avoid regulatory fines, citations and other regulatory actions. Finally, they demonstrate good corporate responsibility and citizenship.

The future of coal in the hard-to-abate sectors

By Patrick Kipngetich

The use of coal in hard-to-abate sectors in the economy has often faced obstacles due to its contribution to carbon dioxide (CO_2) emissions. While numerous renewable energy sources are being developed to replace coal-based energy, such solutions may not be economically viable for the hard-to-abate sectors. Therefore, while coal is under scrutiny for its environmental impact, it remains a crucial component of energy-intensive industries, necessitating a balanced approach to energy transition that considers both sustainability and economic viability.

Coal is essential for processing steel, cement and ceramics, which are known for their high energy consumption. Its physical properties, which include high calorific value, redox characteristics, and the ability to sustain prolonged high temperatures in furnaces, make it a preferred choice. Recent advancements in coal thermochemical conversion technologies, such as pyrolysis and gasification, present promising pathways for more sustainable utilisation of coal and emissions reduction in these critical sectors. Current research indicates that these energy-intensive industries contribute approximately 25percent of global CO_2 emissions and face significant challenges in fully adopting renewable energy.

The cement industry is another significant emitter of CO_2, accounting for roughly 8percent of global emissions. It heavily depends on coal to achieve the high temperatures required for clinker production, especially during calcination at around 1,450 °c. Some leading industry players, such as Cemex, have partially substituted coal with biomass and waste-derived fuels (Climafuel), resulting in a 30–40percent reduction in coal use and a 25percent decrease in CO_2 emissions. However, they face challenges related to calorific value and moisture content that affect kiln stability.

Brimstone in the United States has utilised electric plasma torches powered by renewable energy for limestone calcination, thereby eliminating coal and producing magnesium silicate for carbon capture. However, this method requires four times the conventional energy input per ton of clinker. The HYGRO Project, initiated by Heidelberg Materials in Sweden, has successfully replaced coal with green hydrogen in pilot clinker kilns. This shift has achieved a 90percent reduction in direct CO_2 emissions, combined with carbon capture and storage (CCS). Nevertheless, the high cost of green hydrogen, ranging from $4 to $6 per kg, which is three times the equivalent coal energy price, along with the expenses of retrofitting kilns for hydrogen compatibility, poses significant challenges.

The cement industry is gradually transitioning to plasma gasification and Vertical Roller Mills (VRMs) for enhanced energy efficiency and reduced carbon footprints. These technologies utilise pulverised coal gas to dry essential raw materials such as pozzolana and gypsum. VRMs are distinctive for their energy efficiency, consuming only one-third of the energy used by horizontal ball mills. This approach improves process efficiency and encourages environmentally friendly production practices. With the successful implementation of VRMs by UltraTech Cement in India and Heidelberg Cement in Europe, this technology has proven its capability to boost productivity while reducing costs and minimising environmental impacts.

As an intermediate solution, pyrolysis and gasification offer the steel industry, which accounts for 7percent of global

CO_2 emissions, a practical solution for lowering emissions while maintaining operational efficiency. Coal gasification, in particular, allows for the creation of synthetic gas (syngas), which burns cleaner and can be easily incorporated into existing furnaces with minimal changes. Initial findings suggest that this approach can reduce direct CO_2 emissions by as much as 90 percent and facilitate resource recovery through capturing and utilising slag and metals. Recognising coal's continued importance as an energy source, India and China are implementing large-scale gasification projects to modernise traditional steel plants, providing a practical means to lower coal combustion emissions while sustaining production output.

The ceramics industry, which often relies on coal energy due to high demands for cheaper, cleaner, and accessible energy, urgently needs a sustainable solution. The temperatures required to bake and dry ceramic tiles and other essential materials range between 1,000 and 1,300 degrees Celsius. The process often uses syngas from coal gasification for baking and drying. Industry leaders, like Italy's SACMI Group, have significantly contributed to plasma-assisted sintering and microwave-assisted ceramic processing research in response to the demand for more energy-efficient procedures. The goal is to innovate supervised injection that uses less energy and shortens firing cycles. Although the solution is not yet commercially viable, these advancements indicate that coal usage in ceramics can evolve with practical applications and sustainability optimisation.

Kenya can potentially make coal energy its best option, as this resource is readily available, abundant and cheaper than other energy sources. Kenya can benefit from examining the success of the Foshan ceramics cluster in Guangdong Province, China, to enhance its industrialisation efforts, particularly in implementing large-scale gasification operations essential for the country's industrial future. China has established a standardised pipeline system to distribute coal-derived syngas to manufacturing units, and this infrastructure has contributed to a record 40 percent reduction in fuel costs while significantly lowering particulate matter and sulfur dioxide emissions.

Despite the dynamics of demand, managing coal usage requires an awareness of global trends in non-renewable energy. Many countries are now focusing on carbon neutrality within the current political and economic landscape. These shifts have triggered the rapid shutdown of coal plants, posing challenges for hard-to-abate sectors. Sudden adjustments can lead to significant economic disruptions, especially for developing economies that depend on coal for their industrial development. A cautionary example is Germany's coal phase-out, which increased the import of natural gas due to the closure of domestic coal plants, creating strategic vulnerabilities during geopolitical disruptions. Consequently, some previously decommissioned coal power plants were temporarily reactivated to stabilise the grid and manage industrial activities.

Professionals ought to embrace equitable burden-sharing in policymaking along with realistic timelines for varied national energy contexts. Policymakers should recognise that a rigid decarbonisation strategy, which pressures industrialising nations to abandon affordable energy too quickly, is unsustainable. A balanced approach focusing on scaling clean coal technologies and adaptive policy formulation can significantly bridge climate aspirations and industrial resilience. Strategic interventions must enable broader participation in a truly equitable and achievable decarbonisation process, particularly in countries like Kenya.

The writer is a coal officer at EPRA

The role of regulators and utilities in accelerating the electrification of cooking across East Africa

By Jon Leary, Anna Clements, Will Clements, Syprose Ochieng & Beryl Onjala

eCooking, offers East African utilities the ability to stimulate demand, raise revenue and increase the social and environmental impact of electricity access. Governments across the region have recognised this win-win opportunity by developing dedicated eCooking strategies and embedding cooking within broader energy sector planning processes. This article reviews these new policy instruments and distils the critical roles assigned to utilities and regulators across the region.

In 2024, Tanzania and Kenya launched multi-fuel clean cooking strategies, with Uganda's also nearing completion. All clearly outline electricity as a key fuel/technology enabling the transition away from biomass. As Kenya's broader energy sector updates its strategic planning documents, Medium Term Plan and National Electrification Strategy, the eCooking Strategy offers demand forecasts for the cooking sector.

Digging deeper into these strategic planning documents, it is clear that both utilities and regulators have critical roles to play in the scale up of eCooking in their respective countries. As the cooking fuel supplier, the utility has the responsibility of ensuring reliable power is available to as many customers as possible. Meanwhile, the regulator ensures this power is affordable to consumers, yet cost-reflective for the utility. However, the roles of these two critical institutions can extend far beyond these core functions. The following section draws together some of the innovative approaches taken by regulators and utilities across the region, with the shared vision of enabling financial sustainability for the power sector and socio-economic transformation for its customers.

Utilities can play a critical role in enabling access to finance for consumers and enterprises. In Tanzania, TANESCO is leveraging the pre-pay metering system to explore on-bill financing for eCooking appliances [4]. Meanwhile, in Uganda, Umeme conducted bulk procurement of 1,500 Electric Pressure Cookers (EPCs) to carry out a utility-enabled eCooking pilot with its staff and selected customers [5]. Access to Energy Institute (A2EI) monitored 500 customers with smart meters and showed that eCooking saves people almost 50% on cooking fuel costs [5]. The World Bank Energy Access Scale Up Programme (EASP), run by the Uganda Energy Credit Capitalisation Company (UECCC), is pairing demand stimulation with grid extension by incentivising new connections to be bundled with cooking appliances. In Kenya, KPLC is currently supporting the sale of IoT-enabled appliances to their customers through installation of smart meters.

The utilities in the three countries have been able to leverage electricity sector finance by integrating cooking into electricity infrastructure upgrades to ensure financial sustainability through additional revenue generation. In Kenya, this is linked to Phase 3 of the AfDB-funded component of the Last Mile Connectivity Project (LMCP), whilst in Tanzania, AfDB have proposed linking it to a transmission loan for the sub-marine cable connecting Zanzibar with mainland Tanzania.

Electricity tariffs are another key entry point for utilities and regulators. Uganda launched its eCooking Tariff in 2021, offering half price consumption from 80-150kWh/month. The eCooking Tariff was widely promoted by both the utility and the regulator, and a recent impact evaluation showed that it has changed perceptions around the relative cost of cooking with electricity.

In 2023, electricity pricing was restructured in Kenya to create a new tariff band for domestic customers consuming 30-100kWh/month, with the stated aim of supporting demand growth, including cooking. Unfortunately, the disaggregation of cooking loads from broader household consumption is a major barrier to targeted electricity pricing for cooking. However, in both Kenya and Uganda, rebate programmes linked to measured consumption from smart-metered eCooking appliances are being tested.

Regulators also have a key role to play in ensuring quality of both power and appliances. In Kenya, EPRA recently published Electric Cooking Guidelines in March 2025. The guidelines support consumers to understand the advantages and limitations of modern energy-efficient appliances. Star rating labels on electric appliances offer consumers a simple reference point for understanding energy consumption and will soon be extended to cooking appliances under the Kenya National Energy Efficiency and Conservation Strategy.

Meanwhile, in Tanzania, the Ministry of Energy, TBS (Tanzania Bureau of Standards), MECS and UNDP are coordinating the development of Minimum Energy Performance Standards (MEPS) for air fryers, induction stoves, EPCs and rice cookers.

Kenya's energy access purgatory

By Innocent Mokua Onserio

During the Mission 300 Summit, Kenya and 29 African countries signed the Dar es Salaam Energy Declaration last January 2025 committing to connect over 300 million people to electricity by 2030. With Kenya's current electrification rate of over 75 percent, we seem to be doing well. But what does this mean for households? Has this brought us closer to attaining energy equity? Let us talk about the forgotten group in the energy access conversation: those who, though connected, are yet to reap the benefits of having electricity or clean cooking access as they can hardly afford it and those in the "purgatory" of energy access if you may.

Affording the initial connection fee for most Kenyans has been a challenge even with the subsidies and installment payment arrangements with the utility. Those connected may have a challenge of making scheduled payments for their connections amidst competing and more urgent needs. Then there are those who turn their budgeting upside down to purchase appliances for comfort and entertainment once connected. But therein is a challenge, money that was initially used for basic needs is now diverted to satisfying wants. It is a delicate balance.

To solve part of this problem, we may want to do a mix of policy interventions and commercial solutions, with effort from the public and private sector. The income and purchasing patterns of this set of consumers can give us invaluable insights on what would work. One of the solutions used is loading the connection fee into the customer account, to be recovered through small payments when they make their monthly payments or purchase tokens. This has been done before, all we need is mass roll out and use the learnings to enhance the repayment terms. This would help ease the burden on household budgets.

What about clean cooking? The current model is to buy a more efficient cookstove with little done on the supply of high quality and reliable fuels. Most customers resort to going back to their original fuel source. While others use the clean cooking solutions for making light meals or occasional usage whilst using their traditional cooking methods as the main option. We need solutions that can do the full transitions for faster payback periods and full benefits.

Electricity connections and clean cooking are supposed to empower households and communities. Lighting, phone charging and entertainment are a great convenience but not enough to lift households out of poverty or increase their income.

We need to promote productive use of energy as an essential part of energy access. How do we leverage the power and reach of Kenya Power and other public utilities for this effort? Easy. The utility in partnership with commercial partners can promote modern and efficient machines, appliances and tools for use in income generation activities.

Clean cooking for hotels and eateries, cooling solutions, irrigation to name a few. Modular cottage factories can be promoted for value addition and new business - peanut butter making, yoghurt making, welding, milling, food processing. This will greatly increase the income levels of the communities and potentially make available more disposable income that can be used to purchase home appliances to enhance comfort and convenience. The utility wins, the commercial private sector wins, the consumers win, the nation moves forward.

While I appreciate that the work of the utility and most players in generation, transmission and distribution of power is to avail the energy, a lot more value would be unlocked if they were intentional in stimulating energy demand through innovative ways. Waiting upon organic electricity demand growth is simply a bad strategy.

Through public private action we will be able to efficiently and effectively utilise our energy while deriving the maximum economic benefit. The number of Kenyans in the lifeline tariff is a good target for this initiative.

The national conversation needs to move from connections and switch to how these connections are spurring economic growth, lifting households out of poverty, enhanced healthcare and education. Actual and transformative impact. We may need to allocate funds to kickstart the productive use of energy, a revolving fund of some sort.

I am persuaded that if we continue with our business as usual, most progress in energy access will not contribute to economic growth and most connections will have a payback period that will not make economic sense, with little social impact to show.

We need collective effort to turn energy access to an economic success story for Kenya.

Direct air carbon capture is a key contributor to climate change mitigation

By Jinaro Mwogoi

Increased consumption of fossil fuels has led to an increase in carbon dioxide (CO2) emissions. This has led to a rise in global temperature, primarily impacting: sea and ocean levels; extreme weather events; ocean warming, loss of ice and snow cover, just to name a few. As a result we have experienced long seasons of drought, witnessed wild fires breaking out, extreme floods, islands being swallowed by oceans, unpredictable weather patterns, and the mass extinctions of marine life as the salinity of the oceans changes.

According to the UNEP Emissions Gap Report 2024, the total global carbon emissions generated in 2023 were 37.4 billion tons. This accounted for a 1.1 percent increase from the previous year. The direct implication is an 11.68 percent increase in global temperature taken with respect to pre-industrial era temperatures. Mitigation measures are required to reduce the effects of global CO2 emissions.

Among the mitigation measures available is Direct Air Carbon capture (DAC) that attempts to reverse climate change effects by removing excess CO2 present in the atmosphere. DAC works by using fans to suck in air from the atmosphere and passing it through a series of chemical solutions that selectively bind to CO2. The resulting solution or sorbent solid is then passed through a separator where CO2 is extracted through heat or a chemical reaction. The extracted CO2 is then transformed into an industrial raw material through a process known as Artificial Carbon Sequestration.

On the surface, this is a sustainable solution that can be used to address CO2 emissions and reverse the clock on climate change. DAC just like any other technology requires energy to drive it. The energy needed should be "clean" so as to have an overall net positive effect on the environment. According to data published by Carbon Engineering and Climeworks, it takes approximately 2.016GJ or 0.56 MWh to remove one ton of CO2 from the atmosphere. Therefore, to remove the 37.4 billion tons generated in the year 2024, we would need to generate 20,944 TWh for DAC. That is approximately 70 percent of the world's power-generating capacity.

Bringing it closer to home, assuming that our yearly emissions have remained steady since 2022, Kenya would need 12.055 TWh to capture the net CO2 emitted (21.5274 Mtons) in 2024. To further put that into perspective, the country generates 13.42 TWh (EPRA Statistics Report). This means that 89.80% of the generated power will be required for DAC technology, to remove CO2 emissions from 2024. Without giving the hypothetical financial implication, it should be noted that at face value the electricity bill will be Kshs.163 billion payable to Kenya Power.

With this in mind, is DAC a viable solution? Perhaps, it is. The fight against climate change requires a multi-vectorial approach. To achieve net zero by 2050, DAC needs to champion the removal of 980 million tons of CO2 from the atmosphere. Currently, the total CO2 removed stands at under 250,000 tons. The road to realizing this is long but every journey starts with a single step and the direction to be taken should be anchored in policy. Policies and regulations are needed to establish frameworks for consistent and fair operations for companies engaged in DAC.

To ensure compliance with the laws and promote accountability, stakeholders need to set up realistic structures to aid in net zero realization by 2050. The net effect of these steps will contribute to a safer, more organized and equitable environment. Kenya is well positioned and should be at the forefront of championing for this initiative.

This innovative solution should not be taken as a case of one drug cures all. The gears that have already been engaged when it comes to addressing climate change need to be shifted even higher so as to increase the momentum. Innovative solutions need to be fostered and nurtured. This is a race against time, failure to adapt means an end to civilization as we know it. It is safe to say, as man landed on the moon, this hurdle can be overcome.

Free cooling: An energy and environmental conservation strategy

By Eustace Murithi Njeru

Energy efficiency and conservation through free cooling systems is seen as one of the methods that addresses environmental degradation from human activities and the need for business sustainability. This method seeks to increase energy production to satiate demands of an ever growing population and ongoing efforts to curb global warming through adoption of clean energy.

Free cooling technologies attempt to maximise on the use of low ambient air and water temperatures to assist in space cooling and cooling of industrial processes. This can be achieved during the design and construction stage of facilities, production processes, and systems. Incorporating components and control systems that ensure that high energy intensity vapour compression refrigeration cycles used in cooling are switched off to allow the utilisation of environmental air or water whenever ambient temperatures are lower than those required in a facility or a process.

Design of free cooling technology will depend on the type of facility or process. This involves temperatures and air requirements. For example, the quality of air required in the operating theatre, or electronic manufacturing facility differs from that of conference rooms, offices, or shopping spaces. For example, if you are cooling a conference room or an office, colder external air can be utilised by opening windows.

On the other hand, cooling an operating theatre, a data centre or an electronics shop will require air void of dust, meaning use of high-quality dust filters. Use of dust filters adds resistance in the air flow path, necessitating the use of drive fans to assist in overcoming this resistance.

Drive fans are therefore key in the accommodation of free cooling systems in facilities and systems. During design and construction of free cooling systems selection and positioning is paramount since it will not only determine its performance but also energy savings. Research by American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) has shown that incorporation of free cooling systems can save up to 35% of annual cooling energy required.

In Scandinavian countries like Norway, free cooling achieved by utilisation of cold sea water during winter has proved to be a viable way of saving cooling energy required in large, centralised data centres. In tropical countries it might not be as effective as in Scandinavia; however, through coordinated research and proper design of our system free cooling can contribute a lot to energy conservation. This can be achieved by developing free cooling atlas showing areas of high potential for free cooling.

The free cooling atlas will assist developers to make quick and informed choices on where to position their facilities in order to reap maximum benefits. This will require cooperation between all stakeholders in energy and industrial developments for its success.

Careful thought is required for this natural resource in order to achieve the global energy and environmental conservation goals. Free cooling is not just a natural resource but an environmental conservation strategy.

Energy Laws and Ethics: EPRA's leadership in a just energy transition

By Dennis Chacha

Kenya's energy policy and legal instruments reflect efforts to balance economic growth with social equity and environmental stewardship. The Energy Act, 2019, provides a legal framework that governs the generation, transmission, distribution, and supply of electrical energy, as well as the management of renewable energy resources. The Act empowers the Energy and Petroleum Regulatory Authority (EPRA) to: issue, renew, or revoke licenses; set and review tariffs; and enforce compliance, ensuring that all players in the sector adhere to established standards.

On the other hand, ethics is crucial in Kenya's energy sector. This is especially in the procurement and supply chain management of energy and energy infrastructure. Institutions are expected to adopt practices anchored in integrity, accountability and transparency, recognising that ethical conduct directly influences performance and public trust. To ensure fair competition, energy companies in Kenya should prioritise ethical procurement to avoid circumstances of illegality. This expectation aligns with EPRA's oversight, as the authority monitors compliance and enforces sanctions when ethical breaches occur, safeguarding the interests of both consumers and investors.

Kenya's energy sector aims to achieve universal access to affordable energy while transitioning to cleaner sources by 2030. The National Energy Policy of 2018 – currently under review - further cements Kenya's commitment to universal energy access, affordability, and sustainability. The policy outlines strategies to expand infrastructure, promote renewable energy sources such as solar, wind, and geothermal, and accelerate the adoption of clean cooking technologies. It also emphasizes the importance of inclusivity by ensuring that marginalized and rural communities are not left behind in the energy transition. EPRA implements this policy and legal instruments through collaboration with other stakeholders to monitor progress, adjust strategies, and ensure that the benefits of energy development are equitably distributed.

Kenya's approach to energy regulation is also informed by its global commitments, including the Paris Agreement and the Sustainable Development Goals. The integration of climate-resilient energy systems and the promotion of green industrialization are legal and ethical imperatives that guide the sector's evolution. EPRA, in collaboration with other energy sector players ensures that these commitments translate into tangible outcomes, from reduced emissions to improved quality of life for all Kenyans.

The journey of Kenya's energy sector is a testament to the power of laws and ethics in shaping a nation's future. Through a combination of regulation, ethical conduct, and visionary policy, EPRA and its partners are steering Kenya toward a future where energy is not just a commodity but a catalyst for inclusive growth, innovation, and environmental stewardship. In this evolving landscape, the true measure of success will be found not only in megawatts delivered but in the integrity, equity, and sustainability that define Kenya's energy story.

Kenya's Coal: Importing the Heat While Owning Ingredients To Ignite a Bonfire

By Willy Kiptoo

Imagine owning a cow in your homestead that is healthy, well-fed, and mooing every morning to be milked. But every time you think of a good cup of tea, you have to walk to a shop located five kilometres away to buy a packet of milk. Meanwhile, the cow stares at you like, "Really?".

That is exactly what Kenya has been upto for ages, importing coal while sitting on untapped tons and tons of coal reserves. We are paying more to import coal that takes months to arrive while ignoring the mooing truth right at home.

Recent data indicates that the country imports about 1.9 million tons of coal annually to meet its growing industrial demand against locally available coal reserves of over 400 million tons. This import figure justifies why we should allow local production to save on billions of shillings spent on imports and unlock hundreds of jobs in the coal subsector.

EPRA conducted fact-finding assessments to ascertain real import figures and usage in Kenya. A 2024 ground-truthing exercise revealed that eight large industrial users consumed between 5,600 - 6,400 tons daily equating to approximately 1.9 million tons/year. In a separate exercise conducted in February 2025, five smaller users were found to consume approximately 100,000 tons/year. Additionally, 838,251 tons of coal were registered to have entered Kenya through Namanga, Tarakea and Lunga border points between January 2024 and February 2025.

These findings are corroborated by external data sources, underscoring Kenya's high dependence on imported coal. Kenya Ports Authority (KPA) data presents an annual import of 667,230 tons in 2024, while the International Atomic Agency (IEA) estimated 780,000 tons in 2023, worth USD 120 million. Kenya Revenue Authority data showed in 2023 imports were 1,691,783,041 tons and declined to 692,773,861 tons in 2024 (3.6 million tons July 2022-December 2024). Global Energy Monitor noted 1.45 million tons in 2023 being an increase from 1.17 million tons in 2022 mainly from South Africa, Tanzania and the United States of America. Trade Economy, valued coal imports in 2023 at USD 128 million.

This data highlights the need to fast-track local coal development to improve energy security and reduce reliance on coal imports by industrial users. The irony? Kenya is benefiting coal businesses abroad while blocking exploitation of our local reserves in Mui Basin and other regions. Coal remains a 'hot potato' of debates and bureaucracy.

Cement factories, steel manufacturers, glass manufactures, chemical industries, ceramics, captive power generation power plants and lime producers among others rely on coal imports to power their operations.

Data from the Kenya Revenue Authority data reveals that there are low volume importers and transferees of coal as low as one truck (30 tons) that remain undocumented.

The local exploitation and production have been hitting hurdles like: legal battles (concessionaires, activists, local community, government); environmental concerns and in adequate policy and regulatory framework, which have kept Kenya's coal unexploited.

Coal prospecting started in the early 2000s yielding 31 exploratory blocks. A detailed geological mapping, geophysical surveys, exploratory drilling, and resource evaluation were carried out in the Mui basin containing 4 blocks and a single block. The appraisal done presented the availability of an estimated 450 million metric tons. Other exploratory drilling has been done in Kwale. With these figures and statistics, I think it is ripe and time for a bold yes to the government resolving the hurdles and advancing this strategic national resource.

The writer is a Coal Officer at EPRA

Agrivoltaics: Powering Agriculture through solar innovation

By Wanjira Kariuki

As the country grapples with the twin pressures of a growing population and the urgent need for climate resilience, renewable energy and agriculture have emerged as critical pillars of national development. Agriculture continues to employ a huge population in rural areas and contribute substantially to Gross Domestic Product(GDP) while Kenya is a recognised leader in clean energy boasting impressive investments in geothermal, wind, hydro, and increasingly, solar power.

Yet, even with this progress, challenges persist. Farmers face unreliable rainfall, rising temperatures, and power shortages that hinder irrigation and storage. Meanwhile, the pressure to find land for expanding solar infrastructure sometimes puts energy ambitions against food security. But what if we did not have to choose between farming and power generation? What if the same piece of land could serve both needs? Herein comes the agrivoltaics, the ultimate game changer.

Agrivoltaics, also known as dual-use solar farming, is the innovative practice of co-locating solar photovoltaic (PV) panels with agricultural crops on the same piece of land. This approach brings together two critical sectors-agriculture and energy-into a symbiotic relationship that maximizes land use, boosts crop productivity, and generates renewable energy.

In Kenya, where smallholder farmers form the backbone of the economy, agrivoltaics offers a sustainable and scalable solution. The concept is simple yet powerful: installing solar panels high enough above the ground to allow crops to flourish underneath and creating a microclimate that benefits both plant growth and solar efficiency.

The benefits of this system are multifaceted. Solar panels provide shade that reduces water evaporation and shields crops from extreme heat, improving yields. At the same time, the panels generate clean energy that can be used to power irrigation systems, cold storage units, or nearby homes and businesses. Excess electricity can even be fed into the grid, providing farmers with an additional source of income.

Across parts of Makueni and other semi-arid counties, small-scale agrivoltaic pilot projects are already showcasing promising results. These initiatives have empowered farmers to adapt to drought conditions by using solar-powered irrigation and have brought electricity to rural communities previously cut off from the grid. The shade provided by the panels has also improved soil moisture retention, allowing crops like spinach, tomatoes, and onions to thrive even during dry seasons.

But agrivoltaics is not just about technology, it is about resilience. It's about giving farmers tools to survive in an increasingly volatile climate while reducing dependence on fossil fuels. It's about equipping rural communities with reliable, affordable energy and ensuring food production remains stable all year round.

The potential for scaling up this is high. Kenya enjoys high solar irradiance year-round and has vast tracts of land that can be adapted for dual use. With the right policy support, financial incentives, and technical training, agrivoltaics can become a key pillar in achieving the country's renewable energy and food security goals.

Furthermore, the model offers new employment opportunities, particularly for youth interested in agriculture, clean energy, and sustainability. Agrivoltaics introduces a modern, tech-forward approach to farming, which is appealing to younger generations, and aligned with Kenya's Vision 2030.

As the world shifts toward greener economies and climate-smart solutions, Kenya has an opportunity to lead by example. Agrivoltaics is more than a trend. It is a practical, people-cantered innovation that harnesses the full power of the sun to nourish both the land and the livelihoods that depend on it.

In the future of farming, sunlight will not only grow crops. It will light up homes, power pumps, and energize entire communities. In that future, agrivoltaics may well be the bridge that brings food and energy security together.

How Kenya can learn from global best practices and turn urban waste into a clean, permanent energy for a greener future

By Allan Muriuki

Industrial and human development have played a big role in shaping modern civilisation, from fueling growth in infrastructure, technologies, medicine to food production. However, the side effects of this development include air pollution and environmental degradation. As highlighted in an article published by Elsevier entitled, "Energy", researchers emphasised the need for solutions. The writers underscore how Waste-to-Energy (WTE) technologies have positively affected the environment in many European Union (EU) countries through policies supporting clean energy and waste recycling.

On this front, Kenya is making progress in promoting green energy, especially through geothermal, wind and solar energy. It is now time to embrace the transformation of urban waste into clean power. The country has an opportunity to convert the Dandora dumpsite, by taking lessons from Denmark's Amager Bakke waste-to-energy plant, from an environmental disaster into a thriving symbol of sustainability and community pride.

Copenhagen's Amager Bakke, also known as Copenhill converts approximately 440,000 tons of waste annually into electricity and district heating systems for over 60,000 homes. It has transformed waste management into a community asset.

There are environmental and social benefits associated with this plant. The environmental benefits include: a clean and green city; reduced carbon emission; and reduction of landfill dependency. Under the social benefits the plant has redefined how citizens engage with sustainable energy, making green living an everyday experience.

During his 2023 benchmarking mission, Kenya's Principal Secretary for Energy, PS. Alex Wachira, visited Amager Bakke and emphasised that Kenya must explore similar solutions in integrating waste management with clean energy production and urban renewal.

The Dandora dumpsite, opened in 1975 holds over 1.8 million tons of waste, polluting the air, soil, water and threatening the health of nearby residents. Open burning releases dangerous toxins, and the site has long symbolised urban neglect. Denmark's Amager Bakke offers a possible case study solution to one of Nairobi city waste management and environmental conservation. Some of the gains Nairobi city can get if a similar plant project is completed include: power generation; job opportunities; land rehabilitation; and public health improvements.

Kenya can transform obstacles like the Dandora Dumpsite into motivating success stories by taking inspiration from successful models like Denmark's Amager Bakke plant. The country can establish a new standard for urban sustainability in Africa by implementing waste-to-energy innovation to build healthier communities, cleaner cities, and more robust, environmentally friendly economies. It is time to change problems into progress.

Innovation, Collaboration, and prioritising long-term resilience over short-term gains can curtail power losses in transmission and distribution

By Eng. Kanjuki Gitu

Energy loss during transmission and distribution of electricity is unavoidable and leads to inefficiencies and increased operational costs. These losses are categorised as technical or commercial (non-technical). Technical losses occur due to factors such as resistance in conductors, length of the power lines, and conversion losses. On the other hand, commercial losses are as a result of illegal connections, faulty meter readings and non-payment of electricity bills. The socio-economic impacts of power losses include rising electricity costs, limited energy access, and increased environmental degradation.

In Kenya, EPRA set a benchmark of 18.5 percent for system losses in the 2023/24 financial year. However, during that period, total system losses were 23.47 percent, exceeding the benchmark and underscoring the urgent need for improved energy management practices. Comparatively, across the East African Countries, Tanzania had the lowest at 14.57 percent followed by Rwanda at 16.9 percent with Kenya having the highest.

In 2021, the Tanzania Electric Supply Company Limited (TANESCO) reported 5.89 percent for the transmission system and 9.27 percent for the distribution system. Tanzania's success is attributed to rigorous inspection of customer connections, increased adoption of smart meters for real-time usage monitoring, and investments in high-voltage transmission infrastructure to minimise technical losses.

In Europe, the Council for European Energy Regulators (CEER) analysed losses across 40 countries in its 3rd CEER Report on Power Losses 2025 report. The report noted that in 2022, transmission losses ranged from 0.99 percent to 3.96 percent, while distribution losses varied more widely between 1.95 percent and 22.63 percent. The report linked higher distribution losses to longer power lines and larger customer bases. Notably, countries with greater revenue per kilometre of distribution line or lower population density reported fewer losses. However, due to an expected higher number of connections, a country with a higher population density was expected to have more non-technical losses.

Addressing energy losses demands a combination of regulatory foresight, technological innovation, and robust policy frameworks. At the regulatory level, the European Union's Energy Policy introduced the 2023 Energy Efficiency Directive (EED),which has set a requirement that transmission and distribution grid operators should systematically quantify, optimise networks where feasible, and report network losses. This directive establishes accountability and promotes transparency in energy management. Countries like Portugal have complemented such mandates with creative incentive mechanisms that reward the distribution operators that meet loss-reduction targets while penalising those that exceed the agreed reference value. These models incorporate a financial impetus for transmission and distribution grid operators to prioritise efficiency. This ensures that loss reduction is prioritised as a core operational goal rather than an afterthought.

Technological advancements play an equally critical role. Retrofitting aging transformers with low losses transformers, optimising the sizing of conductors, and modernising grid infrastructure with smart grids are proven methods to minimise technical losses caused by outdated or inefficient hardware. Further, as exemplified by Tanzania's rollout of smart meters, they are key in preventing the fight against commercial losses. Smart meters enable real-time monitoring of energy consumption, drastically reducing opportunities for theft and inaccuracies in billing. They also prompt consumers to adopt better energy saving practices to reduce energy consumption.

Policy frameworks further amplify these efforts. The EU's emphasis on prioritising efficiency over simply passing costs to consumers has reshaped operator behaviour across member states. Notably, 27 countries have adopted incentives for distribution losses while 18 countries have adopted incentives for transmission losses. These policies signal a broader shift toward sustainability, ensuring that energy utilities align their practices with long-term environmental and economic goals.

To build on these strategies, regulators and energy utilities must adopt hybrid solutions that integrate technological upgrades with policy reforms. For instance, deploying smart grids alongside incentive-based regulations can enhance the effectiveness of loss reduction efforts. Cross border collaboration is equally vital; sharing best practices such as Tanzania's rigorous inspection practices or the EU's EED frameworks can help nations avoid reinventing the wheel. Public awareness campaigns also play a pivotal role in educating consumers about energy theft consequences, efficient usage and by promotion of community-driven accountability.

Adopting renewable energy can also reduce pressure on the grid especially for localised power production as it reduces reliance on long-distance transmission lines.

Finally, prioritizing grid modernisation in regions with aging infrastructure or rapid urbanisation is non-negotiable. Upgrading networks in these areas not only reduces losses but also enhances resilience against growing energy demands.

Therefore, the path forward is clear: innovate, collaborate, and prioritise long-term resilience over short-term solutions.

The writer is Safety, Health & Environment Engineer at Geothermal Development Company (GDC).

There is need to rethink Health insurance for upstream petroleum workers

By Simiyu Wanjala

During a recent health insurance sensitisation meeting, it emerged that the scope of cover excluded contamination by radioactivity from nuclear fuels, waste or fission. It was noted operations involving potential exposure to natural and man-made radiation, which if excluded from a medical cover defeats the purpose of health insurance. This poses a question: is radioactivity a major concern in upstream petroleum operations?

The atom is the tiniest unit of matter composed of an atomic mass concentrated nucleus (protons and neutrons) and an outer electron shell. An element is identified based on its number of protons (atomic number). Changing the number of neutrons does not affect the chemical properties of the atom, but the mass is changed, hence an isotope of the original element. An atom with too many or too few neutrons is said to be unstable and will try to become stable by emitting energy via radiation. Thus, radioactivity is the process by which unstable atoms try to stabilise through emission of alpha, gamma, beta or neutron radiation.

The presence of radioactive particles has the potential to harm humans and the environment. Contact with radioactive materials can cause diarrhea, vomiting, nausea, lassitude, increased risks of cancer, severe hereditary effects and in some cases death. The International Commission on Radiological Protection (ICRP) emphasises radiation protection to avoid short term biological effects and to restrict long term ones to an acceptable level. Hence, exposure to radiation should be kept as low as reasonably achievable.

Radiation risks in upstream petroleum can stem from man-made radiation sources and/or naturally occurring radioactive material. Exposure can occur during explorations and operations, that may include: drilling, radiography, well logging, tracer work, 'fishing', workovers, repair and maintenance, and decontamination activities. These activities may involve the use of sealed or unsealed radioactive sources.

Sealed radioactive emitters undergo routine tests to rule out any leakage of radioactive substances. Sealed sources must never be subjected to shredding, incineration or compaction to avoid contamination and should not be removed from their containment, or the containment be modified. Their waste must be packed and transferred in accordance with International Atomic Energy Agency (IAEA) regulations.

Unsealed radioactive material may be used in gaseous, liquid or solid forms to conduct tracer studies and offer the investigators with data on fluid flow rates, detect presence of leakage, and to assess task completion status. Upstream radiotracers are employed during well completion, recovery enhancements and simulation. Waste comprises surplus radiotracer, absorbent materials, and industrial PPEs. The preferred technique for such waste minimisation is on-site decay storage then compaction, shredding, and incineration. Ultimately, a waste management program for manmade radioactive waste is supposed to be documented and presented to the regulatory authority for evaluation and assent .

Radiation sources can result in possible environmental contamination and radiation exposure to humans . The risks of exposure can be remedied via: regular radiation levels monitoring using dose rate meters/dosimeters, special waste treatment such as precipitation or decontamination prior to disposal. In addition to radioactive regulations, all workers should be insured according to International Atomic Energy Agency (IAEA) regulations.

The writer is an Upstream Petroleum Officer at EPRA

Financing the Energy Revolution: Powering Progress with Smart Capital

By Hillary Waswa - EPRA

As governments intensify measures to address global warming, the world is at a critical inflection point with the global energy sector. This has witnessed massive investments in modernising infrastructure, installing advanced technologies and scaling up renewable energy as the world gradually moves away from traditional fuels. At its centre is an enabler in a class of its own - financing.

None of that happens unless you have smart, strategic financial backing - even from building a solar farm in the rural areas to retrofitting world's oldest grids to developing battery storage in the developed countries. Energy financing is changing rapidly away from the orthodox in favour of new and more sustainable ways.

According to the estimates by the International Energy Agency (IEA), the amount of energy investment that will be needed each year to reach net-zero emissions by 2050 will be around $4 trillion by 2030. It includes money for renewable energy, energy efficiency, grid upgrades, electric vehicle infrastructure, hydrogen and carbon capture technologies. By contrast, currently global energy investment is about $2.5 trillion per year.

Mobilization of public and private capital is needed in both amounts and at unprecedented levels to close this gap. This is not just for governments, development banks, institutional investors, venture capital firms or private equity.

In the past, energy finance was largely devoted to traditional fuel projects (oil rigs, coal plants, gas pipelines). But climate worries, investor pressure and regulatory changes are overtaking that all very quickly. At the financial institutions level, they are divesting from carbon intensive assets, and reallocating the funds to solar, and low carbon technologies.

The financiers are issuing related instruments including green bonds, climate funds and sustainability linked loans. For instance, green bonds generated over $500 billion in 2023 alone, mostly designated for green energy projects. These are actual instruments which enable investors to support sustainability even as they earn returns on investments.

The financing of energy projects is no longer just about large-scale power plants and government subsidies. Innovation is driving new models that make energy projects more accessible and attractive to a wider range of investors and communities. Some of these models of financing are as listed:

- **Pay-As-You-Go (PAYG):** Such PAYG solar models help households to pay for energy in small amounts, removing the need for large upfront investments. It has brought energy access to millions of people.
- **Community Financing:** Crowdfunding and local co-ownership of energy projects, wind farms and microgrids, are growing in popularity. But the most exciting feature of this framework is that it enables communities to invest directly in their energy future, while also receiving profits.
- **Blended Finance:** Blended finance combines public and private capital in order to de-risk emerging markets projects by having government or philanthropic funds take some of the initial risk. Unblocking private investment in high risk regions is crucial to this approach.

In markets for clean energy, investors are coming to view them as not only economically sustainable, but economically viable. Risk management is very important, especially in the case of early stage commercialization of technologies such as green hydrogen or carbon capture.

Influence is also being exerted by Environmental, Social, and Governance (ESG) criteria. Companies with strong ESG performance are more likely to procure capital, reduce borrowing costs and help to build long term value.

Funding energy infrastructure is not just about money. It is about trust, innovation and having the benefits of clean energy spread widely and equitably.

Is It Time to Make Coal Our Goal?

By Hillary Mengich

In February 2025, the Kenya Broadcasting Corporation news item "Kenya Likely to Face Electricity Rationing in Coming Days" sent out a chilling scare as the country's electricity demand reached a record high of 2,316MW on 12th February 2025 against an available capacity of 2,438MW on the day.

Will I be the first to be rationed? Will I have power in the evening? What happens to my fruits in the fridge? Should I have an electricity plan B? What of my processing/manufacturing plant? Can I install solar panels or an electricity generator to sustain my processes? These were some of the pertinent questions running in the minds of many Kenyans. Is the increasing electricity demand finally a wakeup call for investment in coal power plants?

For leading economies including Australia, United States of America (USA), Germany, India and China, just to mention a few, coal has been the leading source of energy over the centuries. The USA, for example, generated 4,178 terawatt-hour (TWh) of electricity in 2020. Of this, 777.6 TWh was from coal. Similarly, in China, of the total national electricity generation of 9,456 TWh in 2023 coal contributed 5,700 TWh.

The same trend is experienced in Australia where coal fired power plants generated approximately 125 TWh representing 46 percent of the national electricity generation in the year 2023. Unlike the developed economies including the US, China and Australia who highly rely on coal for electricity generation, renewable energy sources lead the charts in Kenya with the renewable sources contributing over 80 percent .

Though Kenya leads the way for renewable energy in the African continent, the question arises, will climate change not affect our current renewable energy sources? What backup plans do we have when our rivers' volume decline? With this in mind, I ask, what are we doing with our coal reserves?

Since the 1500's when Scotland started mining coal for energy, it has been key to the development of economies and national prosperity. It was used to fuel the industrial revolution and economic growth of the 18th and 19th centuries. Over the years, the industrial use of coal has evolved from basic combustion which entailed burning coal for heat and power generation to advanced clean coal technologies such as the flue gas desulfurization, fluidized bed combustion, coal gasification, particulate matter controls and coal liquefactions amongst others.

These processes focus on improving efficiency and reducing emissions. Unlike the economic giants which discovered and exploited their coal in as early as 16th century and powered their economies, Kenya discovered its huge deposits of coal in 2010. Despite having a confirmed deposit of approximately 400 million tons of coal in Mui Basin, Kitui County, Kenya currently imports coal from Tanzania, South Africa, and Mozambique for use in steel production, clinker manufacturing and ceramics industry amongst others.

In the 2030 economic blueprint, Kenya aims at being an industrialised country characterized by manufacturing dominance and doubling of the sector's growth from 7 percent to 15 percent by 2027 and 20 percent by 2030. In achieving this, some of the measures put up by the Kenyan government are the establishment of County Aggregation and Industrial Parks (CAIPs) and value addition in agriculture amongst others.

The current surge in electricity demand and unpredictable weather patterns are precursors of what awaits us as we strive to achieve the Vision 2030 goals and the Agenda 2063 "The Africa We Want". In mitigating this, I submit we ought to develop our proposed coal-fired power plant projects in Lamu and in Kitui, albeit to run on clean coal technologies.

The move will not only provide cheap, reliable electricity to power our economy and economic aspirations, but also bring back Kenya's glory as the East African economic giant in manufacturing and industrialization. To achieve these aspirations, I pose, is it finally time to make coal our goal?

The writer is a Petroleum & Gas Officer at EPRA.

To realise a firm energy foundation, Africa needs to modernise its grids and increase interconnectivity

By Fiona Magomere

The process of building the foundation of a house takes considerable time and starts with excavation of the ground to establish where the foundation will sit. This is transformed into a firm foundation where the house will stand. Just like a house construction process, the energy environment in every country needs a firm foundation as it is a key economic enabler for nearly all sectors.

Access to electricity in Sub-Saharan Africa is very low and adversely affects deployment of development programmes at an individual, public and private level. As the population continues to grow, it is important now more than ever before for African governments to take decisive actions to increase electricity connectivity.

Cognisant of this, Kenya has made strides in diversifying its energy mix to caution its people against the perils of rationing, blackouts and supply stability. Renewable energy in Kenya consists of more than 81.2 percent of the energy dispatched to the grid in 2024 where Geothermal energy leads in this mix by contributing approximately 40 percent of the total energy dispatched. This can however be improved considering that geothermal reserves in Kenya have a potential capacity of between 7GWe and 10GWe. Additionally, Kenya has a huge potential to exploit other renewable energy sources such as wind, solar and small hydros. To achieve this, we will need a stable grid to evacuate electricity from generation to the point of use.

The grid is the backbone of ensuring that electricity spreads across the country and this serves as the foundation for the power sector. Like any other foundation, the grid can take a long time to build. Grid technology is evolving and updates have to be constantly incorporated. Adoption of smart grid technologies is necessary for enhancing the stability of the grid and ensuring quality supply.

A good grid needs to take into consideration future demand and serve the needs of the users at any moment. At the current peak demand of 2,316 MWe - reported on 12th February 2025 - and a total interconnected installed capacity of 3,192 GW, of which 645 MWe is from variable renewable energy resources, Kenya does not have enough reserves. As a player in Africa's energy sector in Africa, you have to ask this question : How firm is our foundation, and is it wise to take on more renewables without ensuring a firm foundation is first established?

Grid stability can be improved by enhancing system inertia. This means there should be increased firm generation in the energy mix. For example, most first-world countries have nuclear, coal or gas as the main source of energy in their energy mix. This coupled with modern digital and interconnected grids, gives them a very firm foundation for incorporating renewable energy resources even without the advantage of energy storage.

With Africa having a high potential of renewable energy especially solar and wind, we need to work on creating a firm foundation by modernizing our grids, working on interconnectivity and increasing our firm capacity reserves before taking on more variable renewable energy sources. This action will ensure a stable and quality supply of power to all grid-connected users.

The writer is a Power System Control Engineer, The National Control Centre - Kenya Power & Lighting Company Plc.

Beyond Solar Panels: It's Time for Kenya to Embrace Concentrated Solar Power

By Jacob Mugendi Kinyua

Kenya has an immense solar energy potential. If fully harnessed, it could power the whole country five times over! While there has been a rapid growth in the use of solar energy, the resource exploited is less than four percent of the total potential, and the capacity to explore more faces a number of challenges.

First, solar is an intermittent and variable energy source. The sun does not shine all the time and when it shines, the intensity varies. For grid scale application, too many variable renewable energy sources can lead to grid instability. Second, intermittent energy sources like solar need a form of energy storage, such as a grid scale Battery Energy Storage System (BESS). This is expensive to install and introduces a 'not-very-clean' element due to environmental concerns associated with mining lithium and cobalt, and battery disposal. To deal with such challenges, Kenya should consider exploring Concentrated Solar Power (CSP) for power generation.

CSP, also known as concentrated solar thermal, is a technology that converts sunlight into heat energy by using reflective materials to direct the sun's rays into a central receiver. This heat is then utilised to create steam which is used to generate electricity using a steam engine. It is like a geothermal power plant, but instead of the steam coming from the ground, it comes from a fluid heated using solar energy. This is a technology that is currently in use in different parts of the world.

In 2024, South Africa launched the 100MW Redstone CSP plant, in addition to the other 7 existing CSP plants. The advantage of CSP plants is that they can be coupled with cost effective energy storage systems whereby energy is stored in the form of molten salt. Such storage can last long, allowing the plant to provide power 24/7, thus achieving a capacity factor sufficient for baseload operation. The plant can also be easily ramped up or down to meet peak power demands.

This is the technology that Kenya needs to explore. A CSP plant with Thermal Energy Storage (TES) would work well in Marsabit County, where the Direct Normal Irradiance (DNI) is high enough to support this type of energy generation. This area is already served with an existing grid connection that serves the Lake Turkana Wind Farm, and is close to a large water source which is necessary for cooling a steam power plant.

Besides, there are more planned solar PV power plants in the region, this coupled with existing wind farms, a CSP plant with TES can help solve the challenge of variability in Kenya's Marsabit energy hub.

Unfortunately, CSP technology has one major downside: cost. The technology has lagged behind solar PV in development, and its cost is quite high, leading to a higher levelised cost of electricity (LCOE). However, future prospects look good and some of the most recent CSP plants have shown a remarkable reduction in LCOE. While the upfront costs could be a challenge, the long-term benefits of energy stability, environmental sustainability, and technological leadership outweigh the challenges. This is why Kenya should consider exploring CSP so that we can build our capacity in this area. Kenya is already a world leader in geothermal, and we can also become a leader in CSP.

The future of energy in Kenya: A mechanical engineering student's perspective

By Catherine Wambui Gathirwa

As a mechanical engineering student passionate about innovation and sustainability, I often ask myself; What role can I play in shaping Kenya's energy future? With energy being the backbone of economic development, and as the world moves toward greener and smarter systems, I believe that students must not only observe the transformation but drive it. Kenya's remarkable strides in renewable energy are inspiring, but we still face challenges in access, affordability, and efficiency.

Kenya is already a front-runner in renewable energy integration, with geothermal, wind, solar, and hydropower forming the majority of the country's electricity generation mix. However, many rural communities remain underserved, and some urban households still rely on unreliable or expensive energy sources. As demand grows, especially from industrial and digital sectors, our systems must evolve.

From my studies, I have learnt that the real challenge is not just about generating more power, but about making our systems smarter, more efficient, and more inclusive. This is where mechanical engineering becomes essential.

In my coursework and attachment, I have learnt that mechanical systems power the energy sector. These systems include: turbines; compressors; HVAC systems; and energy conversion mechanisms. One of my current academic projects involves designing a methane compressor. The goal is to reduce the volume of biogas needed to make it easier and cheaper to transport and store. This type of project has huge potential in communities where waste-to-energy solutions can provide cleaner cooking fuels and help manage waste.

Mechanical engineering provides the tools to improve energy efficiency, reduce losses in power generation and transmission, innovate in energy storage and distribution, and support the shift to decentralised renewable energy systems.

It is not always glamorous, but small mechanical improvements that matter. A better heat exchanger, a more efficient pump can lead to huge gains in sustainability and cost savings. As students, we need to be engaged more in national discussions around energy policy and infrastructure, considering that we are the ones experimenting with ideas in labs, attending energy conferences, and sketching out what the future might look like.

Kenya's energy goals that are universal access, sustainability, and affordability are achievable. The goals require more than just policy and infrastructure. They need the next generation of engineers to rise with confidence, curiosity, and commitment. I envision a future where mechanical engineers work alongside software developers, policymakers, and entrepreneurs to create holistic energy solutions.

Imagine solar micro grids designed with optimised mechanical cooling systems, waste-to-energy plants built by student-engineer collaborations in the counties, rural households using low-cost methane compressors, like the one I am currently designing, to store biogas for cooking. These are not distant dreams, they are possible with the right mindset and support.

As a mechanical engineering student, I do not just see energy as a unit to be studied. I see it as a tool for empowerment and change. Kenya's energy journey is still unfolding, and I am excited to be part of it, not someday in the future, but right now in the classroom, in the workshop and soon, in the field.

There is a need to enhance the concept of challenge driven education in the education system. We need more hands-on learning, interdisciplinary collaboration, and real-world challenges to solve. If mechanical engineering students were more exposed to industry needs, we could develop innovations that are not only academic exercises but scalable solutions.

Kenya's energy sector can intentionally create spaces where students can contribute through funded research, mentorship and internship opportunities. Young engineers like me are ready. We just need the chance to plug in.

New trends in upstream activities in Kenya

By Erick Kipngetich Towett and Daniel Muthui

Kenya has an abundance of natural resources that include: rich agronomic land; mineral reserves (including zinc, soda ash, salt, limestone, gemstones, gypsum, fluorspar, and diatomite); enormous water supplies; renewable energy; and a wealth of flora and fauna. In addition to improving ecosystems and supporting people's lifestyles by supplying food, medicine, and income, natural resources are essential economic drivers and energy sources.

Beginning in the 1950s, B.P. Shell Development Company was the first to be authorised to work at the Lamu Embayment oil well, demonstrating Kenya's potential for oil and gas exploration, production, and development. Since then, the Tertiary Rift has seen the drilling of roughly 86 wells. Tullow Plc and its partners have discovered an estimated four billion barrels of crude oil reserves in the Lokichar sub-basin, with an estimated 750 million barrels of recoverable oil.

Currently, all petroleum exploration data, including seismic data, well logs, well reports, aeromagnetic and gravity data, acquired in the nation by various Oil and Gas operators in both digital and analog formats, are kept in the custody of the National Oil Corporation of Kenya (NOCK) through its data management centre.

But recently, the Energy and Petroleum Regulatory Authority (EPRA) has advanced in the acquisition of the aforementioned exploration data. The purpose of acquisition is to create a pool hence lessening data acquisition time, drilling hazards, finding possible reservoir locations, and improving exploration and production efficiency.

A wide stakeholder approach, high capital intensity, and up-to-date data collection are all necessary for the exploration process. This is one of the most demanding procedures in the upstream petroleum sector. Several multinational oil firms (IOCs) have expressed interest in the Country's oil potential as a result of this spike. Even though there were only four working rigs by 2021, the number of rigs in operation rose from one in 2012 to eleven by 2014. To increase the feasibility of large-scale initiatives, such multinational alliances are crucial for pooling resources and sharing risks.

Basin	Area coverage (km2)
1. Lamu	261,000
2. Mandera	43,000
3. Anza	81,000
4. Tertiary Rift Basin	100,000
Total Area	**485,000**

Table 1: Kenyan Sedimentary Basins

Block	Basin	Areas	Content
13T 10BB	Tertiary Rift-Valley Amosing Twiga Ewoi Etuko Ekunyuk Ekales Etom Agete Erut	Ngamia	Oil
9	Anza	Sala-1 well	Gas
L8	Off-shore Lamu	Mbawa-1 well	Oil
L10A		Sunbbird-1 well	Oil and Gas

Table 2: New oil and Gas Discovery blocks

The Kenya government has taken the initiative to create an environment that encourages upstream activities by formulating standards and development plans. A revised field development plan (FDP) for Blocks 10BB and 13T (Tables 1 and 2) was submitted in December 2021 as part of a joint venture, reflecting the government's commitment to supporting the expansion of oil production. This is a positive indicator towards improving oil and gas exploration and development. The efficiency of exploration and the reduction of upstream activity costs, depend on technological advancements. Companies that use advanced technologies for seismic surveys and drilling operations may see better exploration outcomes.

The ripple concept of regulation is essential for improving safety, pollution control, and standard adherence. It also creates a favorable climate for stakeholders to participate in petroleum and gas exploration, development, and production with the goal of increasing the economic effect on the population.

Upstream petroleum laws and standards are essential for improving viable throughput and safety, and their implementation is crucial for the success of future petroleum and natural gas exploration, production, and development.

Uganda, on the other hand, is emerging as a leading oil and gas hub in East Africa. The Albertine Graben oil block, which was established in the 1920s and commercially explored in 2006, is the primary center for oil and gas development in the country. The Petroleum Authority of Uganda (PAU) introduced a second licensing program for oil exploration in the Avivi, Omuka, Kasuruban, Turaco, and Ngaji blocks during the 2019 East Africa Petroleum Conference in Mombasa, Kenya.

This initiative will better equip the country to explore the estimated 6.5 billion barrels of oil stored in these blocks. However, despite the country's abundance of oil, there is no standardized framework to guide upstream activities, which could potentially lead to an imbalance in the ecosystem.

Meeting stakeholder expectations is a major part of the EPRA's mandate, which depends on providing working regulations and standards that allow them to participate in the coal, petroleum, gas, renewable energy, and power industries. Therefore, Kenya's goal of enhancing people's quality of life through the value addition of natural resources can only be realized if operational guidelines are established that level the playing field for participation in the upstream petroleum sector.

To provide standards for upstream petroleum activities and create a sustainable and enabling environment for everyone, EPRA collaborates with Kenya's Bureau of Standards (KEBS) to develop standards. These standards are meant to address exploratory procedures including wire lining, coring, drilling, and pressure testing, as well as tools such as blowout preventers and drilling tools, all designed to ensure optimal performance and safety.

One way to establish uniform operating standards both inside the nation and even within the region is through the harmonization of upstream standards. As a result, the County will be able to fulfil its potential to value its natural resources for the benefit of its citizens.

The writers are Upstream Petroleum Officers at EPRA

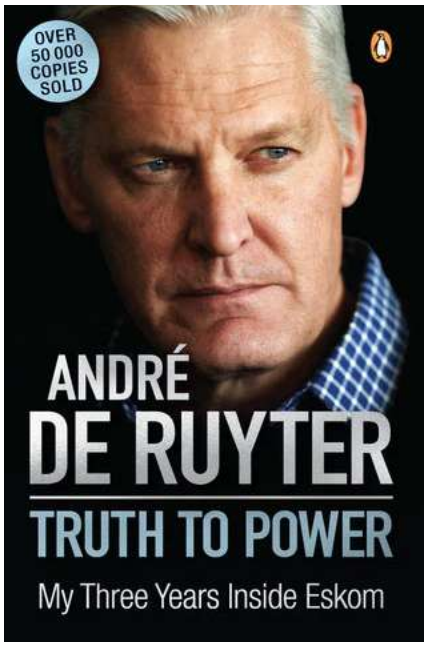
Truth to Power: My Three Years Inside Eskom by André de Ruyter

Genre: Memoir / Energy Policy / Political Economy
Publisher: Penguin Random House South Africa

Akrasia – defined in the *Oxford Dictionary of Philosophy* as *"the condition in which, while knowing what it would be best to do, one does something else"* [1]- is the psychological and philosophical thread that weaves through Andre de Ruyter's explosive memoir, ***Truth to Power: My Three Years Inside Eskom***. Through this classical lens, the former Eskom CEO lays bare how the South African energy crisis was fuelled, not merely by technical and logistical failures, but by a fundamental flaw - deep seated moral and institutional paralysis. This flaw was further exacerbated by crony capitalism, state capture, unmitigated corporate corruption, fraud, political entrepreneurship, factionalism and ideological wars.

He attributes Eskom's near total collapse, neglect, wanton looting and unprecedented stage 6 load shedding to this tragic weakness of the will, lack of integrity, or courage to act in public interest, despite having both the knowledge and wherewithal to do so.

Andre is stinging in his indictment of the ANC's leadership - including those responsible for long term energy planning and policy - under President Cyril Ramaphosa: *"It was clear", he writes, "that government was suffering from what Aristotle called akrasia: the unerring propensity to always make the worst possible decision".*



Bringing a Knife to a Gun Fight?

When de Ruyter took the reins of leadership at Megawatt Park, Eskom's headquarters, in January 2020, he knew the role had been rejected by some 28 other candidates, mostly black, and that he was stepping into a political minefield fraught with difficulties and dangers, including the possibility of death.

However, he was banking on experience, personal ambition and a solid plan. Armed with three decades of experience in the coal and natural gas value chain at Sasol and C-suite leadership in corporate South Africa, he believed it was his turn to shape his legacy in the country. His personal ambition was to play a role in decarbonising Eskom which was hitherto responsible for close to 25 per cent of Africa's carbon emissions.

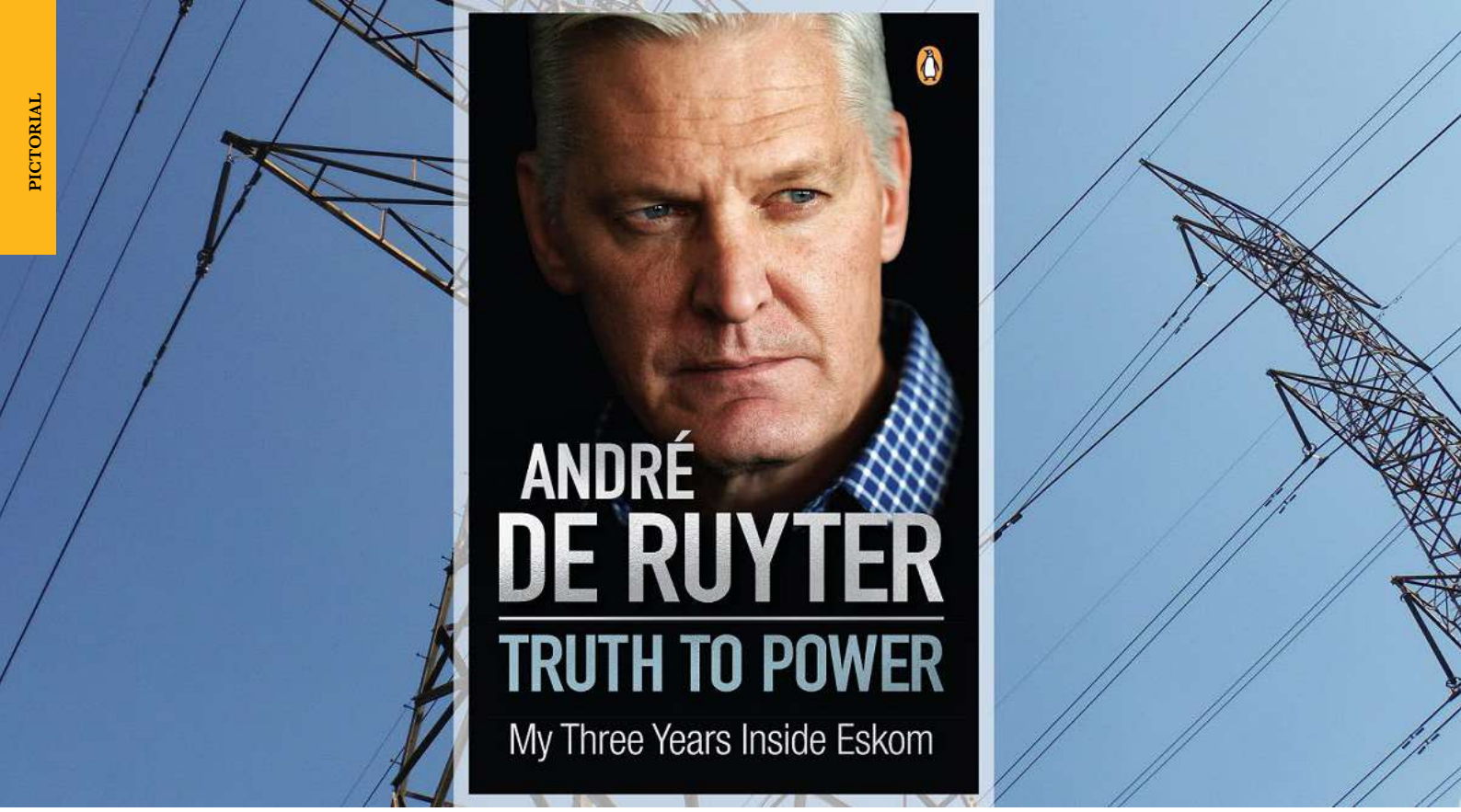
To turn-around the utility's fortunes, Andre had an ambitious and bold 5 - point plan:

1) Restructure Eskom by unbundling the vertically integrated utility into independent generation, transmission and distribution entities;
2) Inject operational excellence in the utility's generating plants;
3) Modernise the transmission and distribution infrastructure;
4) Implement a data-driven maintenance strategy;
5) Improve Eskom's financial position by securing cost reflective tariffs by petitioning the National Energy Regulator of South Africa (NERSA) to adhere to its Multi-Year Price Determination Methodology.

On the unbundling of Eskom, Andre writes, *"...we must bid the Old Eskom farewell. The notion of a vertically integrated monolithic monopoly that meets most of the power needs of a country is as superannuated as a state-owned telephone company."*

However, in the dystopian world he found himself in, the corporate mojo, technical skills, personal resolve and a home-grown strategy were not enough to deal with the ethical and leadership flaws that manifested in more load shedding and operational challenges.

[1] S. Blackburn, Oxford dictionary of philosophy, 2008.



Which Way for Energy Transition?

The ideological paralysis colours one of the most intriguing themes in Truth to Power: the political economy of the energy transition in South Africa – and the role that global geopolitics plays in defining the three imperatives of energy access: security, equity and environmental sustainability. De Ruyter finds that South Africa's policies on energy, natural resources and procurement lacked coherence, and were emblematic of the dysfunction within the ANC. He avers that the Marxist-Leninist ideologies embraced by some actors keen on controlling factors of production did not favour decentralized and distributed renewable energy systems. Coal, according to De Ruyter, is sacred in South Africa – a cash cow. An aborted deal with Russia seeking to introduce nuclear energy into the country despite studies finding it too expensive, time consuming and unnecessary is a good example of how energy planning and policy was held hostage by foreign interests.

The ambivalence, in government, is best demonstrated, in the book, by Mr Gwede Mantashe, the minister for mineral resources and energy. While on one hand he is expected to lead the country's energy security and transition plan, he loves coal and dislikes green energy in equal measure. This *double-think* was carried into South Africa's long term energy plan – the Integrated Resource Plan (IRP) 2019.

Reading through the book, there are lessons for the energy sector in Kenya. Unlocking the power of Public-Private Partnerships for infrastructure development is one such.

De Ruyter survived an attempt on his life in December 2022 and decided that it was time to resign. The engaging narrative ends with him taking stock of his time at Eskom and contending that his time at the utility was not a failure. Critics contend that he was naive, ill prepared and lacked experience for the Eskom job. They point to the plummeting share price at Nampak under his watch and the fact that load shedding worsened in his tenure at Eskom. Put on the dock, his explanations understandably sound to some as excuses and shifting blame.

Truth to Power is at once bold, witty, humorous, sad and in some instances, unapologetically arrogant. Fast paced, and sometimes a little convoluted - much like De Ruyter's tenuous and troubled stint at Eskom – it reads like fiction. But if you've read even Part IV of the Zondo Commission's Report on allegations of state capture, fraud and corruption in South Africa, you'll admit this as society holding a mirror to itself. De Ruyter concludes, *"The notion that the state capture project ended when the Guptas' ZS-OAK departed Lanseria, allegedly laden to the gunwales with loot, is sadly mistaken. Like a cancerous tumour that has been removed, the residual corruption has metastasised and spread even more widely through South Africa's body politic.*

A sobering polemic, the book paints a compelling picture of a man who was handed an impossible task– and without the time, tools, team or trust to succeed.

Ngala, Maxwell
Energy Specialist

Kenya Solar Week 2025

EPRA's Deputy Director of Electricity Eng. Boniface Kinyanjui speaks at the Solar Week Kenya 2025: Conference & Awards at a Nairobi Hotel in April 2025. He delivered a keynote speech on Policy, Regulation & Vision: Accelerating Kenya's Solar. Transition on behalf of the Director General

EPRA's Senior Renewable Energy Officer, Eng. Hassid Okumu having a chit chat with a stakeholder at the Solar Week Kenya 2025: Conference & Awards at a Nairobi Hotel in April 2025.

EPRA's Senior Renewable Energy Officer, Eng. Hassid Okumu (l), receives the prestigious Honorary Award at Solar Week Kenya 2025 in Nairobi on behalf of the Director General, Daniel Kiptoo Bargoria. The award recognizes Kiptoo's remarkable contributions to advancing Kenya's renewable energy sector.

Electricity Public Consultative Workshop

In May 2025, EPRA conducted country wide public consultative workshops on two sets of the Draft Energy (Electric Power Undertaking Licensing) Regulations, 2025 and Draft Energy (Electricity Supply and Installation Work) Regulations, 2025. The forums were held in Kisumu, Eldoret, Nakuru, Nairobi, Mombasa, Garissa and Meru.

EPRA's Senior Electricity Officer (Power System), Mr. Benson Kimathi speaks at the public consultative workshop at a Meru Hotel on May 2nd 2025.

Madaraka Day 2025

EPRA participated and exhibited during the Madaraka Day celebrations thematic week held at Tom Mboya University in Homabay County in May 2025 .

EPRA's Manager, Public Education & Advocacy, Bessie Atieno (in specs) interacts with Mr. Dennis Itumbi Head of Presidential Projects and Creative Economy and other stakeholders at the exhibition booth during the Madaraka Day celebrations thematic week in May 2025.

6th Annual EPRA Research and Innovation Conference 2025

In June 2025, EPRA held the 6th Annual EPRA Research and Innovation Conference in Nairobi. Themed "Energy Access," the conference convened researchers, policymakers, private sector leaders, and development partners to exchange bold ideas and shape the future of Kenya's energy landscape.

EPRA Director General, Daniel Kiptoo Bargoria speaking at the Annual EPRA Research and Innovation Conference in June 2025 in Nairobi.

EPRA Director of Economic Regulation & Strategy, Dr. John M. Mutua speaks at the Annual EPRA Research and Innovation Conference in June 2025 in Nairobi.

EPRA's Deputy Director of Regulatory Services, Dancun Ndegwa speaks at the Annual EPRA Research and Innovation Conference in June 2025 in Nairobi.

EPRA Deputy Director of Corporate Communications, Ms. Letitia Ouko speaks at the Annual EPRA Research and Innovation Conference in June 2025 in Nairobi.

EPRA Corporation Secretary & Director Legal Services, CS Ibrahim Kitoo speaks during a penal discussions at the Annual EPRA Research and Innovation Conference in June 2025 in Nairobi.

World Utilities Congress

The Director General, Mr. Daniel Kiptoo Bargoria in May 2025 participated as a panelist at the World Utilities Congress held in Abu Dhabi. The panelists focused on the role of Geothermal Energy Applications on the road to a Net Zero World.

EPRA Director General, Daniel Kiptoo Bargoria speaks during a panel discussion in Abu Dhabi in May 2025.

Issuance of the Energy Management Compliance Certificate

In May 2025 presented Energy Management Compliance Certificates to Kenya Breweries – Kisumu and Isuzu East Africa Limited at a Nairobi hotel. The Director of Electricity & Renewable Energy, Dr. Eng. Joseph Oketch, presided over the event on behalf of the Director General.

EPRA Director of Electricity & Renewable Energy, Dr. Eng. Joseph Oketch (3rd from left) hands over the Energy Management Compliance Certificates to Isuzu East Africa Limited.

Petroleum Workshop

In May 2025, EPRA hosted a stakeholder engagement workshop in Nairobi to receive comments on guidelines governing the use of foreign registered petroleum tankers operating within Kenya. This workshop brought together a diverse group of stakeholders: Kenya Revenue Authority; National Environment Management Authority (NEMA); the State Department of Trade, Oil Marketing Companies (OMCs); independent petroleum marketers and transporters among others.

EPRA staff led by Mr. Gerald Cheruiyot (in specs) follow proceedings at the stakeholder engagement workshop in Nairobi.

Senior Petroleum & Gas Officer, Daniel Choi speaks during the stakeholder engagement workshop in Nairobi.

Public Education & Advocacy forum

In May 2025, EPRA through public education and advocacy officers, in collaboration with National Government Administration Officers (NGAO), conducted a public *baraza* on the safety and compliance of electricity, LPG and petroleum products at Uthiru Chief's office, Dagoretti South Sub County in Nairobi. Senior Public Education Officer, Mr. Peter Kirukmet and Public Education Officer Ms. Caroline Mwangi led our team during the event.

Senior Public Education Officer, Mr. Peter Kirukmet distributes Information, Education and Communication materials to attendees during the public baraza.

Public Education Officer Ms. Caroline Mwangi speaking during the public baraza.

Kaa Safe Mtaani Campaign workshop

In May 2025, EPRA hosted the Kaa Safe Mtaani campaign in Machakos. The forum aimed to enhance collaborations and partnerships to promote energy and petroleum safety.

EPRA Deputy Director for Public Education & Advocacy, Ms. Anne Kiprotich hands over a Branded merchandise during the engagement workshop in Machakos.

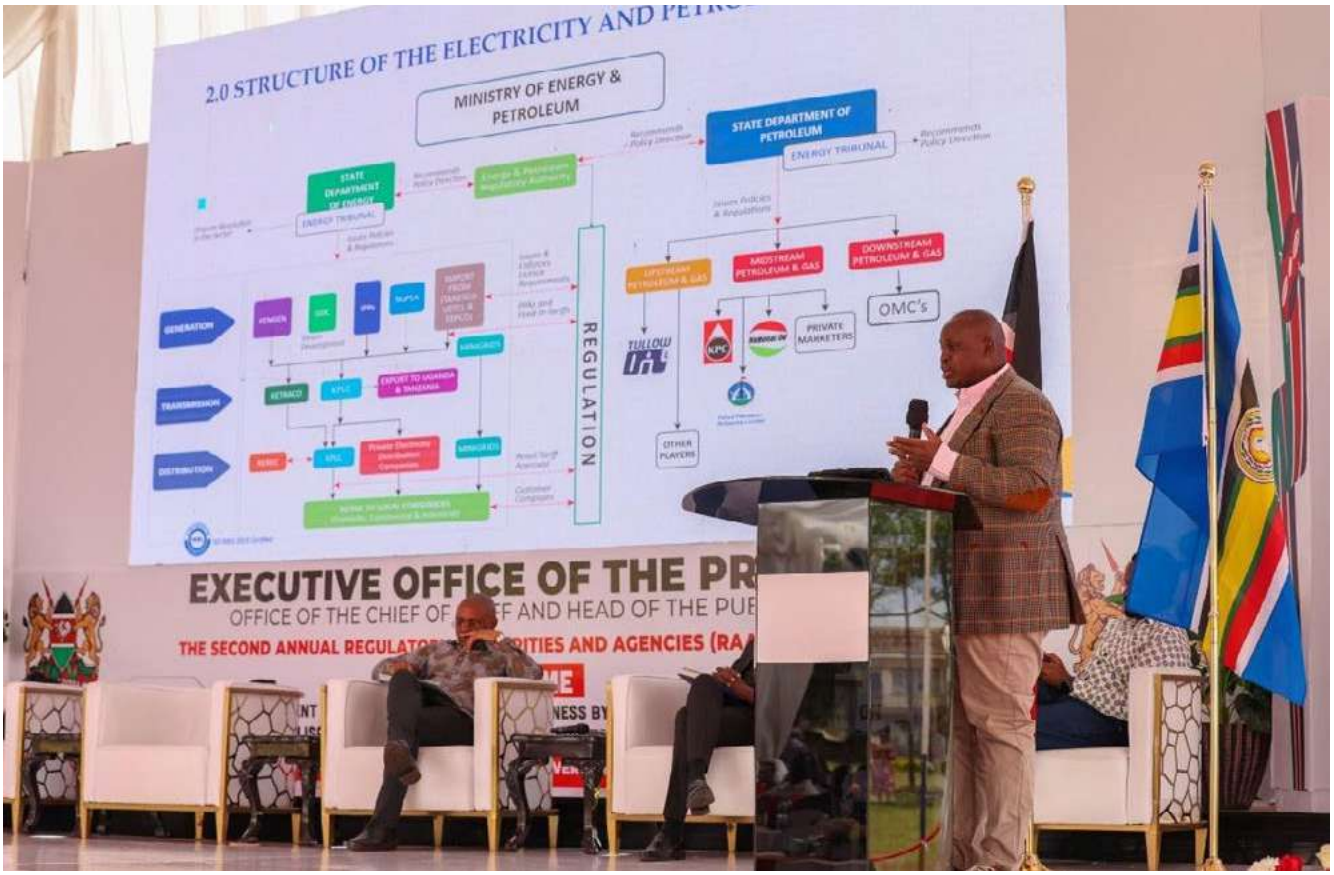
Afri Fueling Expo 2025 Award

EPRA in May received an award from Afrifueling Expo 2025. The award is in recognition of valued partnership during the expo held in Nairobi May 6th - 8th 2025. The Director for Petroleum & Gas Eng. Edward Kinyua received the award on behalf of the EPRA.

EPRA Director for Petroleum & Gas Eng. Edward Kinyua (l) receives the Afrifueling Expo 2025 award from Mr. John Njogu, the Vice Chairman of the Energy Sector Board.

2nd Annual Regulatory Authorities and Agencies (RAAs) Conference

In April 2025, EPRA Director General Daniel Kiptoo Bargoria participated at the 2nd Annual Regulatory Authorities and Agencies (RAA)s Conference in Eldoret.



EPRA Director General, Mr. Daniel Kiptoo Bargoria speaks during the 2nd Annual Regulatory Authorities and Agencies (RAA)s Conference in Eldoret.

Ghana Delegation

EPRA in April 2025 hosted a high-level delegation from the Ghana Petroleum Downstream Sector Reforms Working Committee, led by Ms. Emma Bulley. The delegation was in the country for a benchmarking mission to study the country's downstream petroleum regulatory framework and infrastructure. The delegation was received by the Director of Petroleum & Gas, Eng. Edward Kinyua, on behalf of EPRA Director General, Mr. Daniel Kiptoo Bargoria.

EPRA Director of Petroleum & Gas Eng. Edward Kinyua seated in a blue suit accompanied by staff pose for a photo with a Ghana Petroleum Downstream Sector Reforms Working Committee delegation at our offices in Upperhill Nairobi.

Kaa Safe Mtaani Launch

In April 2025, EPRA launched the Kaa Safe Mtaani campaign in Nairobi. The purpose of the campaign is to reduce incidents and accidents related to unsafe handling of LPG, petroleum products and electricity and build a safety-first culture in the energy and petroleum sectors.

EPRA Director General, Mr. Daniel Kiptoo Bargoria speaks during the Kaa Safe Mtaani campaign launch in Nairobi.

Energy & Petroleum CS, Hon. Opiyo Wandayi speaking during the Kaa Safe Mtaani campaign launch in Nairobi.

ENERGYSCOOP

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