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A Geothermal Gold Rush – how East Africa converts heat into industry

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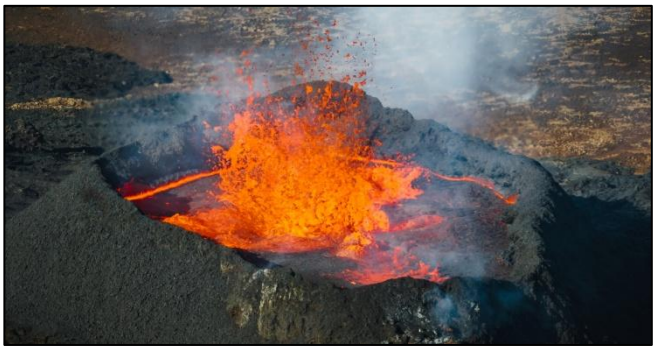

East Africa's Rift Valley holds high-enthalpy geothermal resources that provide steady, 24/7 power. This reliable output can support energy-intensive uses such as industrial parks, data centres, desalination and, in time, green hydrogen. Kenya has converted its geology into grid strength. About 80% of its electricity now comes from renewables, with geothermal supplying around 45%, the largest share. Ongoing transmission expansion is paving the way for greater regional power trade.

In Kenya, the Olkaria complex continues to expand, Menengai Independent Power Producers (IPP) are coming online, and the Geothermal Development Company (GDC) is preparing Public-Private Partnerships (PPP) tenders such as the 100 MW Paka field, with production slated to start by 2028. In Ethiopia, public development at Aluto-Langano and IPP schemes at Tulu Moye and Corbetti remain strategic, yet progress depends on bankable structures and tariff reform.

Policy and finance will ultimately shape outcomes. In Kenya, standardised Power Purchasing Agreements (PPA) with USD-linked payments lower currency risk for projects like OrPower4, while GDC de-risks by drilling early-stage wells. Ethiopia is focusing on climate finance, stronger PPP frameworks, and expanding generation and transmission.

Green hydrogen is credible only if delivered power is low-cost and offtake secure. Evidence from Africa suggests costs and infrastructure remain the binding constraints. Global attention and capital are moving to proven hydrothermal projects and to new geothermal technologies that could improve opportunities.

Policy credibility: can rules outlast projects?

Kenya has moved from case-by-case discretion to rules that shape participation. The Energy Act (2019) requires every licensee to file and execute a Local Content Plan giving first consideration to Kenyan goods and services, prioritising Kenyan hires across the value chain and providing on-the-job training. Energy and Petroleum Regulatory Agency's (EPRA) draft Electric Power Undertaking Licensing Regulations (2024) tie licensing to compliance with these local-content obligations.

In 2025, EPRA also published a regulatory impact statement for new renewable energy resource regulations that would standardise geothermal permitting and embed community benefit-sharing (including a royalty on geothermal steam), nudging foreign developers toward joint ventures and community agreements.

Ethiopia's framework is similarly prescriptive, built through sector-specific laws and directives. The Geothermal Resources Development Proclamation (2016), its 2019 Implementing Regulation, and Ethiopian Energy Authority (EEA) directives set the legal basis for licensing, land access and technical compliance. The legislation includes strong local-capacity provisions, preferential employment of qualified Ethiopian citizens and skills transfer from foreign developers. PPPs and PPAs are promoted to attract IPPs, but these operate within the defined regulatory perimeter.

The capacity challenge is one of implementation. Kenya's draft 2025 rules diagnose real bottlenecks (unclear permitting steps, missing technical standards and weak data/reporting) which slow projects and make it harder for local firms to integrate into supply chains. Ethiopia's laws set the right direction, yet developing specialised geothermal skills and service bases is a multi-year process. Preference for Ethiopian employment raises quality and accountability but also forces foreign developers to invest early in training and supplier development. In both markets, policy is steering participation toward local value. The near-term constraint is the pace at which standards and skills pipelines catch up with the project pipeline.

Follow the money: who's backing East Africa's geothermal build-out

Foreign capital is broad but anchored by development finance and risk-mitigation. Grant windows like the African Union's Geothermal Risk Mitigation Facility (GRMF) permit early drilling, while multilaterals and insurers (World Bank/Multilateral Investment Guarantee Agency (MIGA) guarantees and ATIDI's Regional Liquidity Support Facility) de-risk offtaker exposure. Regional lenders such as DBSA and export credit from Japan (NEXI/JBIC) round out the stack.

Menengai Phase I shows the model: Three 35-MW IPPs (Sosian, Globeleq, and OrPower 22 /Ormat) are each investing about US$90 million, backed by payment guarantees. Sponsors include Western and African firms (for example Globeleq via BII/Norfund), Asian partners such as Toyota Tsusho with JBIC/NEXI support, and Chinese private capital through Kaishan's SPV acquisition. Investor appetite is clear, but long-term viability depends on utility creditworthiness. Ormat has flagged arrears from Kenya Power and tariff pressures, underscoring the need for liquidity.

In Ethiopia, the flagships are Tulu Moye (owned by France's Meridiam and Iceland's Reykjavík Geothermal, with MIGA support) and Corbetti, backed by InfraCo Africa (PIDG), Berkeley Energy and partners. Timelines have stretched and PPAs required extensions, highlighting execution and regulatory risk. Continued guarantees cover and clear procurement frameworks are crucial to keep capital engaged.

Great-power playbooks for East Africa

Major powers are using the Rift Valley as a test case for green-growth diplomacy. The EU is pairing market access with climate finance. The EU-Kenya Economic Partnership Agreement, in force since July 2024, contains strong sustainability provisions, while Global Gateway is scaling energy and hydrogen investment and lists Kenya as a 2025 flagship country. Team Europe's grants support Kenya's hydrogen roadmap, positioning the EU as standards-setter and co-financier rather than Engineering Procurement and Construction (EPC) contractor.

Washington blends development expertise with de-risking and trade support. Power Africa and US agencies are pushing bankable projects and grid flexibility, from Ethiopia's Tulu Moye (in DFC's FY2024 pipeline) to Kenya's early storage procurements backed by US Trade and Development Agency (USTDA) and the Commerce Department.

China's positioning is equipment and EPC-led, tied to broader infrastructure diplomacy. Chinese firms are building and supplying Kenya's Menengai programme (Kaishan/POWERCHINA at the OrPower-22 unit) and were key contractors on the Ethiopia–Kenya High voltage and Direct Current (HVDC) "electricity highway", which underpins regional clean-power trade.

Overall, Europe brings rules and blended finance, the US offers risk-mitigation and developers, and China supplies steel, turbines and transmission. Executives can layer EU trade access and grants, US guarantees and technology and Chinese EPC cost and scale, but all depend on credible offtakers and cross-border interconnectors that secure bankable cash flows.

Who benefits from the steam?

Kenya is steering geothermal revenues toward place-based development. In 2025, it designated Olkaria a Special Economic Zone (SEZ), anchored by KenGen's Green Energy Park, to attract manufacturers and service firms using low-carbon power and direct heat, turning output into jobs and local value chains, not just utility revenues.

EPRA's draft renewable energy resource regulations (2025) would introduce a royalty on geothermal steam and require benefit-sharing provisions in licence applications, tying approvals to county- and community-level participation. The accompanying regulatory impact statement highlights gaps (unclear permits and weak reporting) that, if unresolved, will delay projects and limit local supplier growth.

Ethiopia remains state-led. All operating plants sit under Ethiopian Electric Power, with private IPPs only just beginning to advance. Until they scale, most value will accrue to state entities and contractors. Donor-backed IPPs such as Tulu Moye must run resettlement and livelihood programmes, and publish environmental and social plans, directing some benefits to local communities during construction and early operations.

Both countries are building frameworks that can turn geothermal revenues into broader development. Kenya's SEZ-plus-royalty model is already pointing industrial benefits toward local ecosystems, while Ethiopia's diffusion depends on timely IPP delivery and enforcement of community commitments. Durable, broad-based gains will hinge less on headline policies than on execution: streamlined permits, transparent revenue flows, sustained investment in local skills and suppliers to meet utility and EPC demand.

Conclusion

East Africa's geothermal push is no longer a technical curiosity but a strategic test of policy credibility and invest-ability. Kenya shows what steady rules, bankable PPAs, and targeted industrial policy can do. The Olkaria's SEZ model and clearer permitting are turning baseload heat and power into jobs and local supply chains.

Ethiopia's path is more state-led, with IPPs advancing under firm regulations. Delivery at Tulu Moye and Corbetti will determine how quickly benefits diffuse beyond utilities. Capital is available (de-risked by guarantees and regional lenders) and major powers are engaged, but durability hinges on offtaker reform, cross-border interconnectors, transparent revenue flows and sustained investment in skills. All in all, the region has the geology and the financiers. Turning steam into broad-based wealth now depends on execution that can outlast the political cycles.