

POWERING AGRIBUSINESS TRANSFORMATION

BY LABAN KEINO



WHY RENEWABLE ENERGY MATTERS FOR KENYA'S
CLIMATE SMART FUTURE

Despite agriculture employing a majority of rural households in Kenya, it remains highly vulnerable to rising input costs, weak rural infrastructure, and climate variability. Among the most persistent constraints is energy access. While Kenya has built a global reputation as a renewable energy leader at the grid level, with around 80 – 90 % of its electricity generated from renewable sources such as geothermal, hydro, wind, and solar, this success does not translate into reliable, affordable energy for agribusiness firms, especially in rural and peri-urban areas. This disconnect represents both a risk and a major opportunity. Renewable energy is no longer just an environmental add-on for agriculture but a core productivity input that can strengthen resilience across food systems, reduce emissions, and unlock value addition.





National electricity access has nearly doubled over the last decade, growing from approximately 37 % in 2013 to around 79 % by 2023, with a government target of universal access by 2030. However, roughly 30 % of rural communities still lack reliable grid electricity, which is where most agribusiness activities are based. This disconnect between electricity generation and productive energy use represents both a risk and a major opportunity. Many agribusinesses continue to depend on insufficient off-grid solutions, diesel generators, and unreliable grid supply. Diesel remains a significant cost driver, raising operating costs and carbon footprints especially for irrigation, milling, cold storage, and processing equipment. Without reliable power, cooperatives struggle to move into value addition, processors cannot store or cool produce effectively, and farmers cannot irrigate efficiently. These constraints disproportionately affect women- and youth-led enterprises, which often have less access to capital and infrastructure.



Solar cold room facility

Across Kenya's value chains, these energy constraints manifest as low-value commodity sales, underutilized agro-processing capacity, significant post-harvest losses, and limited irrigation coverage. Renewable energy is no longer a peripheral environmental add-on but a core productivity input that can strengthen resilience across food systems, reduce emissions, and unlock value addition.

Distributed renewable energy solutions are uniquely suited to agribusiness needs. Bioenergy systems convert livestock waste and crop residues into biogas, powering on-farm processing while supporting circular economy objectives. Solar cold rooms and milk chillers allow producers to aggregate, store, and negotiate better prices, cutting post-harvest losses and stabilizing incomes. Solar-powered irrigation systems enable farmers to transition from rain-fed to climate-resilient production while reducing fuel costs.

What makes these technologies increasingly compelling is their declining cost and supportive business models. Pay-as-you-go and leasing arrangements have lowered entry barriers, allowing smallholders and SMEs to access productive energy services without upfront investment that is prohibitive. When paired with remote monitoring and digital payment platforms, these systems become commercially viable and scalable.

From a climate perspective, integrating renewable energy in agribusiness directly reduces greenhouse gas emissions by replacing diesel and inefficient biomass use. It also strengthens adaptation by enabling reliable irrigation, cooling, and processing under increasingly unpredictable climate conditions. Inclusive green growth is further supported by creating rural jobs and expanding market access.



POLICY LANDSCAPE

Kenya's policy environment contains several mechanisms that support renewable energy deployment and can help overcome the sector's energy constraints particularly at the intersection of energy, agriculture, and climate goals.

1

National Energy Policy (2025–2034).

The recently drafted National Energy Policy sets a clear direction toward universal electricity access by 2030, with a major emphasis on renewable energy expansion, off-grid solutions, and productive uses. It explicitly supports captive power generation and net-metering frameworks, enabling businesses to generate their own renewable energy and to export excess power back to the grid. The policy notes that over 530 MW of captive power capacity is already installed in Kenya, much of it from solar PV, signaling business interest in self-generation.

2

Net-Metering Incentives.

Under the Energy (Net-Metering) Regulations 2024, businesses and households with renewable energy installations can export surplus electricity to the national grid and receive credits which is often around 50 % of the retail tariff per kilowatt-hour. This policy reduces the effective cost of solar installations and boosts the financial attractiveness of on-site renewables for agribusinesses.

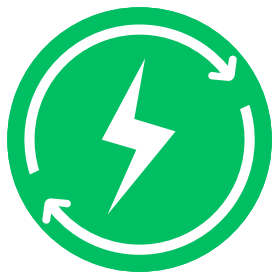
3

Kenya Off-Grid Solar Access Project (KOSAP).

KOSAP, a World Bank-supported initiative, is mobilizing around USD 150 million to expand renewable energy services across underserved regions in Kenya. It targets the deployment of 120 mini-grids, 250 000 standalone solar home systems, and 150 000 clean cooking solutions across 14 marginalized counties. These off-grid systems are critical for powering agro-processing, cold storage, lighting, and irrigation in areas where grid supply is weak or absent.

Fiscal incentives such as VAT exemptions and import duty waivers on solar energy equipment, as well as investment deduction allowances, further improve the investment case for renewable energy installations. These incentives reduce upfront costs and make it easier for agribusiness SMEs to adopt technologies such as solar PV, solar water pumps, and biogas digesters.

While Kenya has made strong advances in renewable energy policy, energy access, and climate planning, siloed implementation across energy, agriculture, and climate financing continues to slow the diffusion of proven solutions. To accelerate impact, policymakers and development actors should prioritize:



Agricultural strategies at national and county levels that explicitly integrate renewable energy as a productive input, not just as infrastructure.



Public and concessional finance focused on de-risking investments for agribusiness SMEs through blended finance, guarantees, and results-based incentives.



Rural electrification and mini-grid programs designed around productive uses of energy, ensuring that agro-processing, cold storage, irrigation, and other value-adding activities anchor local demand.

Renewable energy is a strategic enabler of climate-smart agribusiness, not a peripheral intervention. Aligning energy, agriculture, and climate finance policies can unlock inclusive growth, strengthen resilience, and accelerate Kenya's transition to a low-carbon food system creating real opportunities for productivity, employment, and sustainability in rural economies

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