Powering rural growth and climate adaptation in Kenya

A POWER UP POLICY BRIEFING

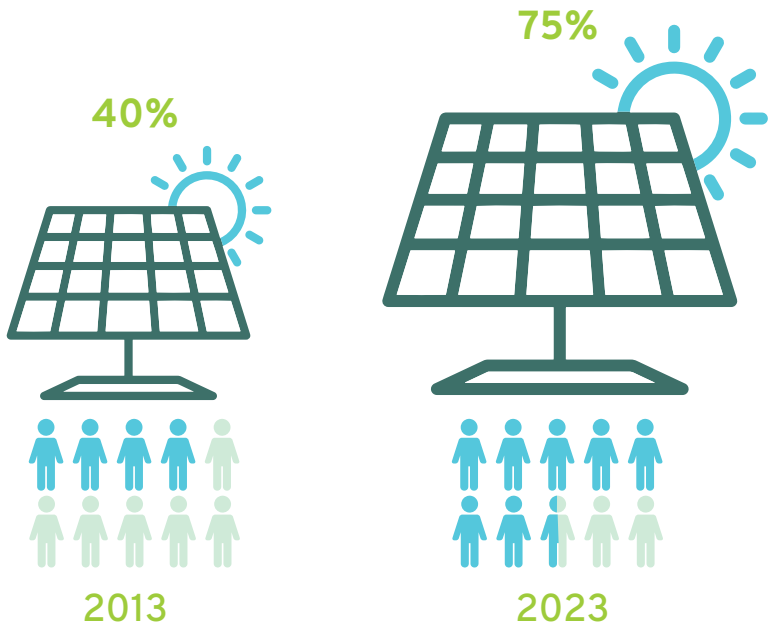
POWER UP

Energising growth and resilience

The case for action on rural energy access

The number of Kenyans with reliable access to energy has soared in the last decade, from 40% of the population in 2013 to about 75% today. But millions – including those at greatest risk from the effects of climate change – still lack access to electricity, as well as safe cooking fuels and technologies. Using proven solutions to connect people with clean, affordable off-grid power is needed to raise living standards and prepare communities for the damaging effects of the climate crisis.

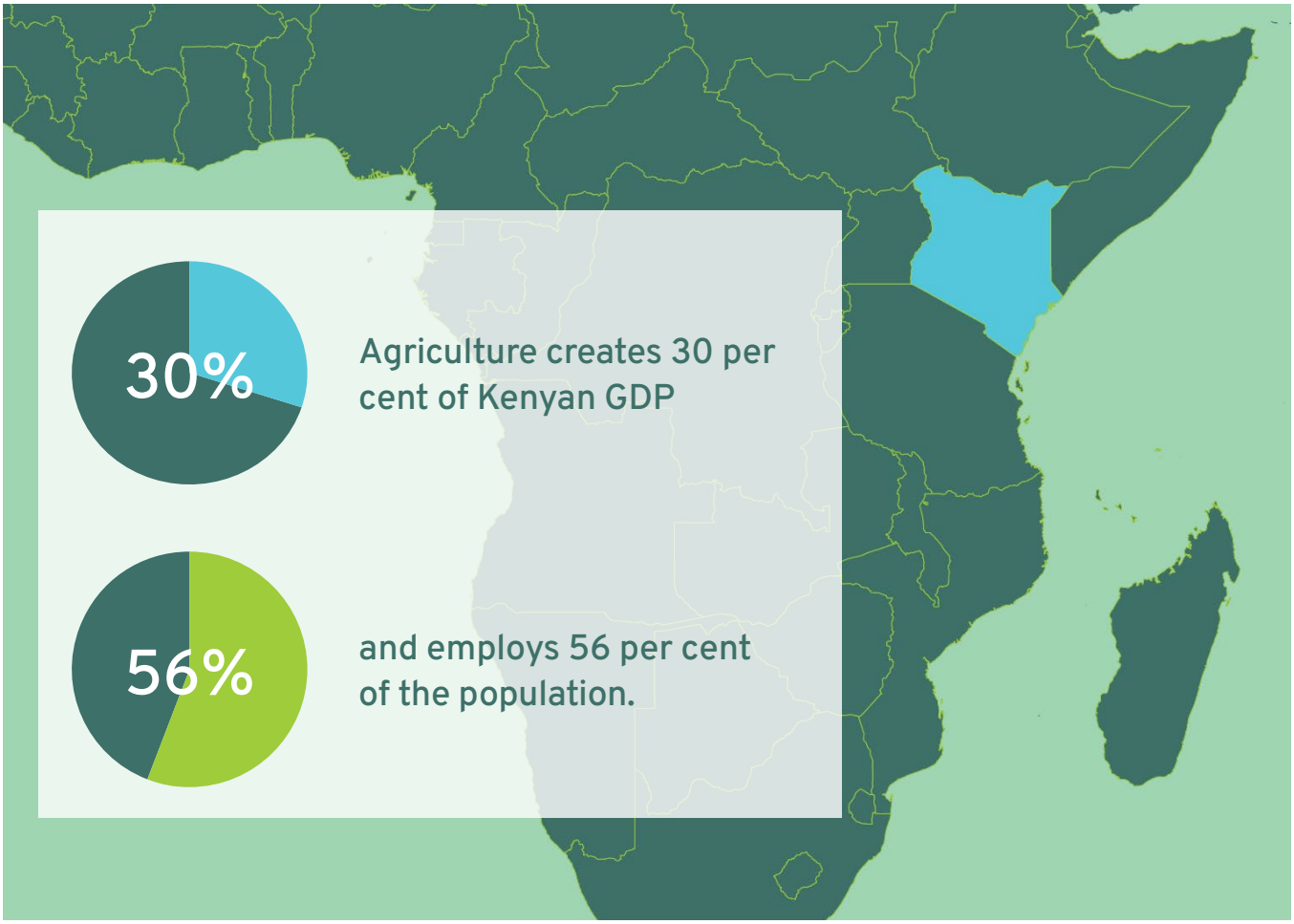
Percentage of the Kenyan population with reliable access to energy



With appropriate global support and investment, domestic policy action can address achieve this goal. This Power Up briefing lays out nine recommendations focused on boosting adaptation and sustainable growth in off-grid communities, through wider access to clean, affordable energy. In particular, these recommendations aim to strengthen economic resilience in rural areas most threatened by climate impacts.

The need for action is urgent. A warning came in the extreme weather of 2022 – which brought erratic rainfall and flooding as well as high temperatures, dry spells and drought, all damaging crops and livelihoods. In a country where agriculture creates 30% of GDP and 56% of employment, disruption threatens Kenya's ambition to transform into an industrialising, middle-income country, as set out in its Vision 2030 agenda.

Cover image: Monica Wandia uses a solar powered water pump, provided by Anglican Development Services Eastern, to irrigate her 3 acre farm in Makueni County.
Credit: Kelvin Juma/Ashden



Investment in access to clean, affordable energy will address many issues at the heart of Kenya's Nationally Determined Contribution – the 2020 plan guiding the country's response to climate threats. Relevant goals include raising energy efficiency across sectors, the growth of climate-smart agriculture, and efforts to achieve 30% tree coverage by 2030. Ambition is evident at the highest level – in his May 2023 address to the Third Pan-African Parliament Summit, President H.E William Ruto highlighted the importance of technologies such as solar powered irrigation to the future of Kenyan farmers.

Other areas of Kenya's Nationally Determined Contribution bound up with energy access include exploring innovative livelihood strategies, and enhancing the uptake of adaptation technology, especially by women, young people and other vulnerable groups. The case studies featured in this briefing show how communities can use clean energy to reach these goals. The cost of inaction is high – climate change threatens annual losses worth 3 to 4% of national GDP.

While danger lies ahead, so does opportunity. Supportive policies can 'de-risk' private sector investment, which will be essential to meeting national goals of a 100% renewable energy mix by 2030, and the arrival of 300 billion USD of green investments by 2040. The foundations for success are already in place: Kenyan enterprises, local authorities and civil society organisations are driving change and innovation in every corner of the country. Supportive policies will give the organisations and projects featured in this briefing – and others like them – access to the finance, legal frameworks and skilled workforce needed to go further.

As host of Africa Climate Summit 2023 and Africa Climate Week 2023, Kenya has a rare opportunity to showcase dynamic and ambitious climate policymaking on the international stage. This includes sharing a vision of how African entrepreneurship, innovation and sustainable growth can drive global progress to net zero. The summit theme is: 'Africa together for bold, innovative and resourced climate action: unlocking climate finance and green investments.' Clean and affordable off-grid energy is a prime target for such financial support. This includes sharing a vision of how African entrepreneurship, innovation and sustainable growth can drive global progress to net zero.

Power Up urges the adoption of our nine policy asks to protect Kenyan communities from urgent climate dangers, but also plant the seeds of a more prosperous and equitable future.

What is Power Up?

Power Up is Africa's call for greater global investment in climate adaptation – and for funders and governments to put energy access at the heart of adaptation efforts. The global campaign is backed by over 70 organisations, with more joining every month.

Internationally, Power Up is calling for action from donor nations and multi-lateral development banks, and amplifying the voices of enterprises and organisations on the frontline of today's energy access challenges. Key climate pledges are unfulfilled, and funders must step up to properly resource effective climate adaptation.

Within Kenya, the campaign supports policymaking and innovation that delivers climate adaptation through better energy access for marginalised people. Power Up acknowledges Kenya's role as a trailblazer in this area, and also that national efforts depend on the realisation of international climate justice – specifically, a greater flow of funding and support from wealthy nations to those in the Global South.

Nine actions to Power Up adaptation and growth

Power Up calls on the Government of Kenya to promote sustainable development and rural resilience by widening access to clean, affordable energy.

1

Provide urgent action and adequate budget funding to implement the country's Nationally Determined Contribution – its core plan for addressing climate change – and the National Energy Efficiency and Conservation Strategy 2020.

According to the Kenya NDC Finance Strategy report by UNDP, The Government of Kenya estimates that the cost of implementing the mitigation and adaptation actions across sectors to 2030 will be $62 billion USD, to be sourced from both domestic and international sources, with strong private sector participation.

2

Prioritise projects and incentives driving investment in renewable energy, to enhance agricultural production.

Action will lower waste, increase food security and raise supply chain efficiency. Income-boosting technologies and services include milk chilling, crop processing, and irrigation.

The 2019 census report indicated that an estimated 50.4% of the Kenyan population have access to on-grid electricity while 19.4% use solar energy. Mini-grids have a huge potential to fill the energy access gap in off-grid communities and stimulate socio-economic development.

3

Give the renewable energy sector a predictable and stable policy environment and tax incentives for the next 10 years.

After the reinstatement of VAT exemptions in 2021 on solar and wind energy specialised equipment, latent demand meant the number of off grid distributors selling solar water pumps grew from 5% in 2019 to 26% in 2022, according to trade body the Global Off-Grid Lighting Alliance. Even so, affordability remains a barrier to greater uptake. To address this, the Government should maintain a stable regulatory framework for the solar industry.

4

Create subsidies and incentives for off-grid renewable energy options to enable access in off-grid areas as a pathway to boosting the productive use of energy.

Off-grid renewable energy options such as solar home systems are relatively low-cost products that enhance energy access in rural communities, bringing economic and social benefits. Crucially, their deployment increases the presence of energy access providers in off-grid communities. Increased demand for energy and an enabling environment then speeds the spread of other clean energy technologies such as water pumping and cold storage.

5

Boost demand for energy by creating consumer subsidies that help small holder farmers and large-scale producers to access productive use of energy technologies.

Capital expenditure costs for renewable energy technologies are always high. So subsidies are needed to unlock the economic benefits these products bring. Subsidies for both smallholder farmers and larger players in the value chain will help unlock large-scale demand for energy and decentralised energy systems, thus attracting private and public investments.

6

Promote public-private partnerships to mobilise resources for the productive uses of energy in the agricultural sector, targeting small-holder farmers.

The Kenya National Electrification Strategy 2018 acknowledges that lack of appropriate incentives to attract private investors is one of the barriers hindering the achievement of universal access to electricity in Kenya.

The government aims to raise USD 44 billion by 2030 to meet its adaptation targets, as per its revised Nationally Determined Contribution. 90% of the country's adaptation cost will require international support in form of finance, investment, technology development and transfer, and capacity building support, while 10% will be from domestic sources. This therefore calls for strong public-private partnerships to mobilise sufficient resources.

7

Drive agricultural activities by establishing a climate adaptation funding mechanism dedicated to enhancing energy access in Arid and Semi-Arid Land (ASAL) region.

These regions make up more than 80% of Kenya's land area and are home to more than 35% of its people. 8 million people in these regions face chronic food insecurity and are highly vulnerable to drought. Extreme weather will increase risks in the years ahead.

Electrification can address root causes such as low and falling productivity of agricultural land, reliance on rain-fed agriculture, low levels of mechanisation and high post-harvest losses.

8

Launch demand-side campaigns raising awareness of productive use of energy technologies.

Campaigns implemented by the Ministry of Energy and Ministry of Agriculture could comprehensively build consumer confidence for relevant technologies. These could range from television and radio adverts to road shows and social media campaigns.

9

Develop a local technical assistance programme.

Such a programme would give tailored support to promote innovation and improved agricultural technologies and management practices in off-grid areas. This would boost energy access, unlocking greater farm productivity and economic capacity as well as enhanced resilience to climate change risks among rural small holder farmers and agricultural producers.

The programme would be similar to the World Bank's recently concluded Kenya Climate Smart Agriculture Project. It would help off-grid agricultural producers and rural small businesses make energy efficiency improvements and invest in renewable energy systems such as solar irrigation technologies, and solar-powered water pumping and cooling. Protecting farmland and preventing food loss would be key benefits.

SOURCES

undp-ndcsp-Kenya-NDC-Finance-Strategy.pdf

snv.org/assets/explore/download/Kenya%20PUE%20Market%20Status%20_Policy%20Action%20Brief%20and%20Plan_2021_web.pdf

ace-taf.org/wp-content/uploads/2021/04/Impact-of-VAT-and-Import-Duty-on-the-Stand-Alone-Solar-Sector-in-Kenya.-A-policy-position-paper-presented-by-The-Kenya-Renewable-Energy-Association-KEREA-and-GOGLA-2.pdf

pubdocs.worldbank.org/en/413001554284496731/pdf/Kenya-National-Electrification-Strategy-KNES-Key-Highlights-2018.pdf

kilimo.go.ke/wp-content/uploads/2022/03/ASTGS-Abridged-version.pdf

ace-taf.org/wp-content/uploads/2020/09/Demand-Side-Subsidies-in-Off-Grid-Solar-A-Tool-for-Achieving-Universal-Energy-Access-and-Sustainable-Markets.pdf

Power Up agriculture

Clean energy supports crop growing, cattle farming and other activities threatened by extreme weather and rising temperatures.

Sokofresh

Sokofresh bring portable solar-powered cold rooms to smallholder farmers, helping them get a better and more reliable income for what they grow. The company's smart tech encourages individual growers to come together and supply large orders to commercial buyers, cutting out middlemen. Even the poorest can sell to Kenya's biggest food brands and exporters.

Farmers get on-the-spot payment from Sokofresh, and effective cold storage helps them sell a higher-quality product. This has raised farmer incomes by up to 20% with growers seeing just 1% of their fruit rejected by buyers compared to 50% in the past.

Satisfied customers include Stephen Kaboria, a banana farmer from Meru. He says:

> "Sokofresh is a good company because they pay 100% of the product value after harvest, and the process is clear and efficient.

Cold storage services from Sokofresh have raised farmer incomes by up to 20%.
Credit: Kelvin Juma/Ashden

Anglican Development Services Eastern

Anglican Development Services Eastern and the County Government of Makueni have brought better irrigation and water access to more than 2,000 households, with solar-powered pumping from a new reservoir.

The community in Mtito a ndei ward used to rely on shallow wells along the rivers, which were salty and dried up outside of rainy seasons. A reliance on rain to feed crops created food shortages, and conflicts over water were common. The reservoir – created by building a new sand dam – has allowed people to launch or strengthen businesses, enjoy better sanitation and create kitchen gardens as a reliable source of food. The project was funded by SIDA and the Adaptation Consortium.

Tailor and farmer Domiana Mbithe now lives just 200 metres from a water point. She says:

> “I want to extend my farming from subsistence to commercial because now I can access affordable water near my home anytime I need.

In Makueni County, Anglican Development Services Eastern have used water pumping and sand dams to boost local businesses.
Credit: Kelvin Juma/Ashden

Power Up skills and jobs

Support for clean energy creates new jobs, including roles for women and youth.

As well as selling clean cookstoves, Mwangaza Light agent Alice Jeruto educates her neighbours on environmental issues.
Credit: Kelvin Juma/Ashden

Mwangaza Light

Mwangaza Light is a faith-based social enterprise partnering with churches and households to enhance energy access, gender equality, and climate action in Kenya. The organisation distributes clean energy products such as solar lights and cookstoves as part of its work with faith leaders on raising awareness about the benefits of clean energy for both people and the planet.

By reducing demand for charcoal, Mwangaza Light's cookstoves protect local forests. These trees are an important defence against the extreme weather threats made more severe by climate change.

Key to the organisation's work is its change agents, women like Alice Jeruto from Elgeyo Marakwet County. She has helped more than 100 families switch to a clean cookstove. As well as protecting the environment, this flexible job has allowed her to invest time and money in her dairy farming business.

Mwangaza Light's customers in the area include Edinah Sawe, 42. She says:

> "I planted many trees but then I had been cutting them down for firewood. Now, having used a clean energy cookstove for three years, I have spared my trees and I also have spare time.

The Toolkit Skills and Innovation Hub

Toolkit is a digitally innovative social enterprise focused on skilling youth and linking them to employment or entrepreneurship opportunities. Toolkit's robust skilling combines life and employability skills, digital skills and a technical trade.

Kenya will need at least 30,000 solar technicians by 2025. Support for training can meet rising demand and create opportunities for marginalised groups. TTI delivers technical skills but also the 'soft skills' – from business management to digital literacy – needed for a decent career. Crucially, it works closely with industry, making sure training matches the needs of the private sector. In Nandi County, it has helped trainee Anne Njeri find work with corporate partner BBOXX.

She says:

> "I had to drop out of college while pursuing a certificate course in electrical installation because I could not afford fees. When I learnt about the Toolkit programme through a friend, I applied and got picked.

Now she travels between communities on a motorbike provided by BBOXX, installing and fixing solar energy systems. She says:

> "I am happy that I get to discourage the community from using kerosene lanterns and encourage them to adopt solar as an alternative.

Anne Njeri's training included business and technical skills – setting her up for a successful career.
Credit: Sandra Ruongo'o/Ashden

Power Up refugee communities

Displaced people are vulnerable to the effects of climate change, and rising temperatures threaten to create more refugees in the years ahead.

Kakuma Ventures

Kakuma Ventures bring solar-powered internet access to residents in one of the world's largest refugee camps. The business was founded by refugee Innocent Tshilombo and supports entrepreneurs across the Kakuma camp to set up and manage WiFi hotspots in their own neighbourhoods.

Over 1,500 people have been helped to get online, many of them first time internet users. Internet access is boosting enterprises across the camp – from shops to graphic designers – as well as the education of more than 400 students. Kakuma Ventures has also trained more than 60 young people in computing and solar engineering skills and helped them access job opportunities.

The company's operations manager is Conzana Cornelius. She says:

> "When I joined Kakuma Ventures, I had an opportunity to study and work at the same time. I was raised by a single mother in the camp and I feel empowered because I can contribute to the running of my home.

Solar Freeze

Solar Freeze, a Kenyan-owned-and-run company, offers cooling for food and medicine in Kakuma. Its sustainable and affordable service has supported health clinics and small businesses, and 100 women and young people have received free technical training.

Its fridges and freezers are offered on a pay-as-you-go model that makes them affordable to a wide range of customers. These include health centres, where they are used to store vaccines and treatments for conditions including coronavirus, yellow fever, measles.

The connection to clean energy brings other benefits too. John Kibet Kaptoro, a laboratory technician at Kakuma Medical Center, explains that before Solar Freeze arrived the clinic relied on generators and had power for no more than five hours a day. Now solar energy powers technology such as devices for reading insurance cards. John says:

> "This has ensured that we carry on smoothly with treating patients.

Powering forward: three steps to support Power Up

1

Discover our story

Visit Powerupnow.org for more information about the campaign, and to sign up to the Power Up newsletter – which will share information about the campaign in Kenya and beyond.

Search for Power Up on Linkedin, and find us on twitter at @PowerUpEveryone.

2

Connect with us

This summer and autumn, Power Up invites Kenyan policymakers, enterprises and civil society organisations to announce their support for the campaign, and to move forward the development and implementation of the Power Up policy asks.

Email info@powerupnow.org to begin the conversation.

3

Seize the moment this September

The African Climate Action Summit, taking place in Nairobi from 4 to 6 September, is a chance to supercharge energy access in Kenya and beyond. Power Up is backing new pledges for national action, and greater commitment from global funders, at the summit. If you're participating, we invite you to include coalition partners in your panel or event, and to amplify Power Up campaign messages on social media.

Agnes Cheruiyot from Marakwet County is a farmer and sales agent for Mwangaza Light. She has helped 20 of her neighbours access clean energy products.
Credit: Kelvin Juma/Ashden

Meet the Power Up team

The Power Up Kenya working group includes civil society organisations, businesses and non-profits.

Members

(as of 1 June 2023)

The Power Up Kenya working group thanks the people and organisations that have assisted in the development of the campaign.

Power Up worldwide

The international Power Up campaign is supported by a coalition of more than 70 organisations, working globally and on the frontline of today's energy access challenges. See the full list at powerupnow.org.

Find out more

Info@PowerUpNow.org
PowerUpNow.org
@PowerUpEveryone
linkedin.com/company/88168585

POWER UP