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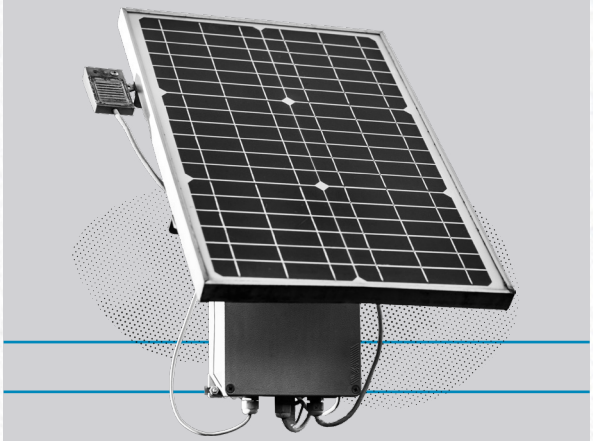
Key research insights

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What would it take for Kenyan businesses to switch to solar backup power?

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Low solar backup uptake among Kenyan MSMEs reflects the combined effects of inaction, limited trust, and financial barriers. Making the costs of power outages visible, demonstrating reliable performance through peer businesses, and offering accessible financing could address these barriers. A behaviorally informed campaign, supported by suitable financing options and stronger quality assurance, can help translate interest in ZE-Gens into adoption.

Project facts

Key words
Kenyan businesses, Solar backup, Productive energy assets, Climate change, PAYGo, Green finance

Behavioral themes
Status quo bias, Social proof

Research design
Mixed-methods- Survey, Focus group discussions (FGD), Key informant interviews (KIIs) with human-centered design prototype testing

Scope
Start date: September 2025
End date: April 2026
n=435

Location
Kenya - Kilifi, Nairobi, Ruiru

Partner
Client: The Carbon Trust
Partner: OWN & Associates

Ethics approval
N/A

Background: Solar powered businesses

Kenya's 1.9 million micro, small, and medium enterprises (MSMEs) account for 96% of businesses, making reliable and affordable electricity essential to their operations.

Zero-emission generators (ZE-Gens), which are solar-powered backup systems, offer a cleaner alternative to fossil-fuel generators with lower running costs, but only 4.8% of MSMEs use solar backup. This research explored why MSMEs hesitate to adopt ZE-Gens and designed a behavioral awareness campaign to encourage the switch.

Conducting the research

435 MSME owners were surveyed across Nairobi (urban), Ruiru/Thika (peri-urban) and Kilifi (rural) to map their energy needs and experience with the electricity grid. Responses were analyzed using a Knowledge, Attitudes and Practices (KAP) framework and grouped into six behavioral personas, which were validated through FGDs in all three locations. Stakeholder interviews with solar suppliers and financiers informed the market analysis. Campaign prototypes were then developed and tested with MSME owners using A/B comparisons and role-play.

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Key research insights

- **The biggest competitor is inaction.** During outages, 70.6% of MSMEs wait for power to return, only 4.8% use solar backup. 86.2% of fossil fuel generator owners bought one only after a major blackout. Campaigns need to make outage losses visible before it promotes any product.
- **Trust is built through peers.** Only 3% of MSMEs report very high trust in solar. 55% have encountered poor-quality products, and 38.4% believe solar can only power lighting. Social norms are a hidden tailwind, 69.2% say their community would respect them for switching. Seeing a neighboring business run reliably on a ZE-Gen persuades more than anything else.
- **Financing, not desire, holds adoption back.** Top barriers are high loan interest and upfront costs. When daily repayments cost less than the daily losses from outages, adoption shifts from a risky purchase to recovered profit.

Implications

For policymakers: The research supports an MSME credit guarantee fund, an environmental levy on fossil-fuel generators and stronger market surveillance. MSMEs are currently excluded from most green credit schemes, and substandard solar products erode trust.

For solar suppliers and financiers: PAYGo providers and SACCOs can use the research to co-design campaign financing from the start. Collateral-free SACCO and MFI options matter especially for women-led businesses, which face higher collateral barriers.

For MSME owners: It reframes outages from inconvenience into daily profit drain. Daily PAYGo payments are often less than daily losses from downtime.

Recommendations for future research

Determining which narratives drive adoption requires evidence on how each performs by persona and geography. The Phase 2 pilot will test all three narratives and track conversion from inquiry to verified purchase. Key questions remain, such as to how gender shapes adoption, which the pilot will track from day one, and how to reach disability-owned enterprises.

Further reading

Kasau, M. A., Nyenge, L. R., & Munji, K. M. (2022). Analysis of energy potential for grid-tied solar energy systems for medium industrial applications. African Journal of Pure and Applied Sciences, 3(2), 237–246. https://doi.org/10.33886/ajpas.v3i2.295

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The aha! moment summarises key facts and insights from Busara's research projects.

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