



EEP AFRICA NEW PORTFOLIO 2021

Clean Energy Powering Green Growth



EEP Africa is hosted and managed by the Nordic Development Fund (NDF) with funding from Austria, Finland and NDF.



Millennium Engineers is a local start-up bringing solar-powered LED lamps to night fishermen on Lake Victoria.

CONTENT

04	About the New Portfolio	18	HannyG Investment Kuni Poa, Maisha Poa: Access to Clean Energy Briquettes	32	OVO Solar Technologies PAYGO Solar Egg Incubators for Smallholder Farmers	48	Tespack Solar Media Backpack
05	Projected Results of New Portfolio	20	KTF Concept Beyond Charcoal: Healthy Cooking with Biomass Pellets	34	Phaesun SelfChill Zambia and Tanzania	50	The Waste Transformers Energy and Water for Sustainable and Circular Food Systems
06	ASOBO e-Boarders on Lake Victoria	22	Mandulis Energy Bioenergy Powering Agriculture and Rural Livelihoods (BePeARL)	36	Plentify Transforming Water Heaters into Intelligent Batteries	52	Tree_Sea.mals Solar-powered Communal Refrigeration
08	Clamore Solar Solar Egg Incubators in Zimbabwe	24	Millennium Engineers Solar Sardine Fishing on Lake Victoria	38	Sanivation Catalysing Uptake of Waste-to-Energy in Kenya	54	Water Access Rwanda Project Ijabo
10	EkoRent Africa Nopea Solar Hub	26	Mobility for Africa Off-grid Renewable Energy Rural Mobility Platform	40	SokoFresh Empowering Zero Food Loss	56	Witech Africa Mustapha Energy: Converting Residual Waste in Cape Town
12	ENdep Shared Solar Cold Rooms for Safe Food Storage	28	OneLamp Productive Solar Energy for Dairy Farmers	42	Solarworx Solar Smart Grid	58	Portfolio Indexes By Country By Theme By Technology
14	Gommyr Power GoHubs Mozambique: Productive Solar Microgrid Hubs	30	OnePower Lesotho Unlocking Productive Uses of Energy for Women in Lesotho	44	Taatissolar Accelerating the Adoption of Solar-powered Refrigeration	62	NDF and Funding Partners
16	Green Impact Technologies Market Food Waste to Biogas Energy			46	Techno Plus Rukova: Greenhouse Aquaculture	66	Contact Information

About the New Portfolio

The Energy and Environment Partnership Trust Fund (EEP Africa) has been a driver of the clean energy transition in Africa since 2010, investing over EUR 50 million in 274 pioneering projects across 15 countries.

EEP Africa supports private sector-led clean energy projects with early stage finance, business development support and market knowledge in Botswana, Burundi, Eswatini, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Tanzania, Uganda, Zambia and Zimbabwe.

EEP Africa contributes to the Paris Climate Agreement and Sustainable Development Goals by enhancing clean energy access, development and investment, with a focus on poor and underserved groups. Since 2010, projects funded by EEP Africa have created close to 9,500 jobs, improved energy access for more than 5 million people, and reduced or avoided close to 1.5 million tonnes of CO₂e.

This booklet profiles the companies added to the EEP Africa portfolio through a competitive call for proposals in 2020 focused on **powering green growth through productive use of energy and circular economy**. The call attracted 357 applications, over 75% of which were submitted by locally registered companies.

The 26 projects featured here will be implemented in 12 countries and represent a total financing commitment of EUR 8.3 million. The new portfolio is composed mainly of start-up companies (81%) and includes a significant number of locally-led (62%) and women-led (38%) businesses. A majority of the projects utilise solar power (62%) and most support productive use of energy (77%). The projects began implementation in 2021.

The projected results from this new part of the portfolio are presented to the right, representing key impact indicators from the EEP Africa results framework.

EEP Africa is a multi-donor trust fund supporting early-stage clean energy projects in Southern and East Africa. It is hosted and managed by the Nordic Development Fund (NDF) with funding from Austria, Finland and NDF.

Projected Results for the New Portfolio

Annual savings on energy-related expenditure

€7.7M



68,000

People with enhanced energy access



2,600 / 43%

Direct jobs created

for Women



105,000 tonnes



CO₂e emissions reduced or avoided per year



25,000 MWh



Clean energy generated per year



Women in leadership

37%





Project Developer
ASOBO Kenya

ASOBO is a start-up developing sustainable platforms for e-mobility services on the water in emerging markets. ASOBO e-Boarders are electric outboard engines powered by renewable energy.



Technology
Energy Efficiency

E-BOARDERS ON LAKE VICTORIA

This project aims to replace highly polluting petrol engines on fishing boats in Lake Victoria with electric alternatives powered by renewable energy. Existing fishing boats will be retrofitted with electric outboard engines through an affordable leasing model. Local fishers will have access to a full-service “propulsion-as-a-service” model on a PAYG basis and at a cost 20% lower than petrol. This will have a positive economic impact on low-income fishers and will reduce both GHG emissions and oil spillages. EEP Africa financing will enable ASOBO to pilot this innovative e-mobility technology and business model on African lakes.

Total Project Budget
EUR 1 909 577

EEP Africa Financing
EUR 500 000

Project Partners
Torqeedo GmbH

Type
Pilot project
Other

Project Code
REG16123

Location
Kenya, Tanzania,
Uganda



Outcome and Impact

For every 100 petrol motors replaced by ASOBO e-Boarders, more than 1,000 tCO₂e is saved per year, which is equivalent to taking 300 cars off the road. In this pilot project, ASOBO aims to retrofit 89 boats, reducing 783 tCO₂e and

saving fishermen a total of EUR11,673 in energy costs per year. The project aims to create 88 new jobs, with 50% of leadership positions filled by women.



Project Developer
Clamore Solar

Clamore Solar is a Zimbabwean company that supplies solar-powered products and systems for domestic, productive, commercial and industrial use.



Technology
Solar PV

SOLAR EGG INCUBATORS IN ZIMBABWE

This project aims to increase the productivity of poultry farmers in rural Zimbabwe by installing high-performing solar egg incubators. The technology improves egg hatching, thus increasing farmer output and improving food security. Clamore will target households, entrepreneurs and MSMEs through partnerships with local farmer associations. The project will also provide after-sales support and access to financing and markets. A PAYG version of the incubator is being developed and Clamore plans to use this pilot as the basis to expand distribution of other agricultural productive use equipment. EEP Africa financing will enable Clamore to integrate PAYG into its product and reach a lower-income customer segment of the poultry value chain.

8

Total Project Budget
EUR 387 000

EEP Africa Financing
EUR 260 000

Project Partners
ActionAid Zimbabwe

Type
Pilot project
Stand-alone

Project Code
ZWE16089

Location
Zimbabwe



Outcome and Impact

The project aims to install 500 solar egg incubators, the majority of which will have capacity for 99-144 eggs with a 250 W solar PV array and 1200 Wh battery capacity. The project will enhance access to productive use

of energy for 2,100 people. Since the poultry value chain is predominantly comprised of women, the project will also provide income-generating opportunities for local women.

9

Project Developer
EkoRent Africa

EkoRent Africa, a subsidiary of a Finnish company, is a front runner in e-mobility in Kenya with its unique, all-electric taxi service NopeaRide.



Technology
Solar PV

NOPEA SOLAR HUB

This project aims to develop a solar-powered charging station in Nairobi for the electric vehicle(EV) taxi service NopeaRide. The new solar charging hub will consist of an EV parking and battery charging area, with 160 kWp solar PV panels on the roof. The clean energy produced has the potential to power up to 1.4 million kilometres with lower operating expenses, enabling EkoRent to increase the number of NopeaRide drivers and expand its serving radius. Excess electricity from the hub is expected to be traded to a local offtaker, such as a shopping mall. EEP Africa financing will support a pilot solar charging station and allow EkoRent to determine the precise technology and strategy for larger scale roll out across East Africa.

Total Project Budget
EUR 357 294

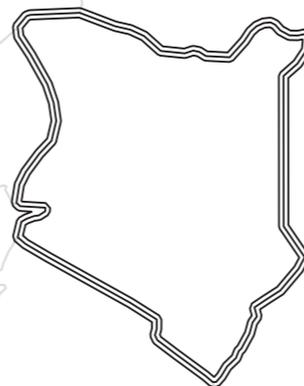
EEP Africa Financing
EUR 200 000

Project Partners
Manketti

Type
Pilot project
Stand-alone

Project Code
KEN16032

Location
Kenya



Outcome and Impact

The solar charging station will make the NopeaRide service even more clean, affordable and sustainable. By generating 208 MWh/year of renewable power for electric cars, this project

will reduce emissions by 252 tCO_{2e} annually and lower air and noise pollution. EkoRent aims to create over 700 jobs and offer taxi drivers higher income earning potential.



SHARED SOLAR COLD ROOMS FOR SAFE FOOD STORAGE

Project Developer
ENdep Limited

ENdep is a Tanzanian turnkey energy services company that provides customized end-to-end solutions aimed at mitigating energy costs and increasing efficiency.



This project will provide solar-powered cold storage for fish traders at Lake Victoria. ENdep will install a prefabricated and insulated container with capacity to store 20 tonnes of fish in Mwanza, Tanzania. The 12 kW solar-powered cold space can reduce post-harvest loss by 60%. ENdep's innovative product-service system business model provides easy access and efficient logistics for local fish traders to rent space in the unit at an affordable price. The project will also promote a circular economy through recycling and wastewater treatment solutions. EEP Africa financing will enable ENdep to demonstrate the viability of shared cold rooms for smallholders to store fish, meat, poultry, dairy and horticultural crops.

Total Project Budget

EUR 466 047

EEP Africa Financing

EUR 312 251

Project Partners

Adelano Solar Cold Chain Solutions Inc.

Type

Demonstration project
Stand-alone

Project Code

TAN16294

Location

Tanzania



Outcome and Impact

The project will provide access to refrigeration services and reduce post-harvest loss for over 240 fish traders in Tanzania. Priority for rental space will be given to women and youth, facilitating entry into the fish trade

and improving their economic livelihood. The system will generate 105 MWh of clean energy per year and reduce greenhouse gas emissions by more than 7,230 tCO₂e.



GOHUBS MOZAMBIQUE: PRODUCTIVE SOLAR MICROGRID HUBS

Project Developer
Gommyr Power

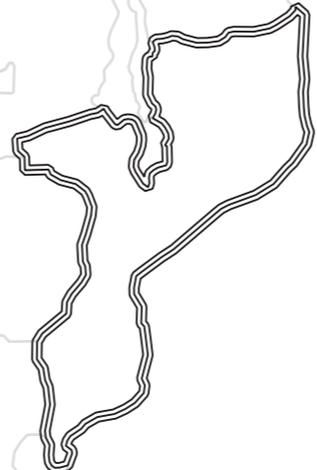
Gommyr Power is a Greek start-up company that specialises in microgrids, localised renewable generation and energy storage.



This is a feasibility study for an integrated productive hub concept for off-grid and weak-grid communities in Mozambique. Gommyr Power will develop plans for a solar-battery microgrid-powered business park providing productive use energy and critical services to commercial and industrial clients. The GoHub concept aggregates and centralises energy demand to achieve sufficient scale for a power system to be economically and operationally viable. GoHubs use the on-site energy to provide services such as water, sanitation, telecoms and security, enabling businesses to operate more effectively. EEP Africa financing will support the planning, design and evaluation of the system specifications and business model.

Total Project Budget
EUR 321 398
EEP Africa Financing
EUR 219 576
Project Partners
Dominio Capital Group
Mozambique
Type
Feasibility study
Mini-grid stand-alone
Project Code
MOZ16372

Location
Mozambique



Outcome and Impact

The objective of the feasibility study is to make the GoHubs project implementation and investment ready. When fully implemented, GoHubs will add 0.6 MW of renewable energy generation capacity, generating 960 MWh/year

and avoiding 1,200 tonnes of CO₂e emissions. The business park will promote economic development by empowering local businesses and entrepreneurs to create jobs and generate green growth.

Project Developer
Green Impact
Technologies (GIT)

GIT is a local start-up that is developing innovative deployment mechanisms for clean energy technologies in Malawi, with a focus on marginalised communities.



Technology
Biogas
Waste-to-Energy

MARKET FOOD WASTE TO BIOGAS ENERGY

This project will pilot an innovative distribution model for waste-to-energy at a vegetable market in Malawi. GIT will establish an energy hub (eHub) at the market that converts biodegradable waste into biogas. The clean energy will be stored and distributed in refillable biogas bags to local households, restaurants and businesses. The biodigester will also convert bio slurry into organic fertilizer that will be sold to smallholder farmers. In addition, the eHub will distribute a range of clean energy technologies to surrounding communities, such as PAYG solar water pumps, solar home systems and improved cookstoves. EEP Africa financing will enable GIT to set up the biodigester and refilling hub in order to test this business model.

Total Project Budget
EUR 300 000

EEP Africa Financing
EUR 200 000

Project Partners
National Association
for Business Women
(NABW), Foundation
for Irrigation and
Sustainable Development
(FISD)

Type
Pilot project
Stand-alone

Project Code
MWI16055

Location
Malawi



Outcome and Impact

The project will provide a circular economy solution for a local vegetable market. The installed biogas system will generate 0.31 MW of clean energy and reduce 1,909 tCO₂e

emissions during the life of the project. The project will primarily employ women to collect feedstock at the market, manage the eHub and distribute the biogas.



KUNI POA, MAISHA POA: ACCESS TO CLEAN ENERGY BRIQUETTES

Project Developer
HannyG Investment

HannyG is a local, women-led start-up in Tanzania that produces eco-friendly and cost-saving cooking and fuel solutions for schools and small businesses.



Technology
Cookstove
Solid biomass

This project will replicate a clean cooking business model developed in Arusha in the larger market of Dar es Salaam. HannyG uses a binder-less briquetting technology to transform agricultural waste into “white coals” that are ideal for industrial boilers. The Kuni Poa briquettes are sold to school, restaurants and businesses in a package plan with affordable cookstoves. The company has already demonstrated its business model without external funding and is ready to expand operations. EEP Africa financing will enable HannyG to increase manufacturing capacity to 3,600 tonnes of briquettes per year and move into a larger market.

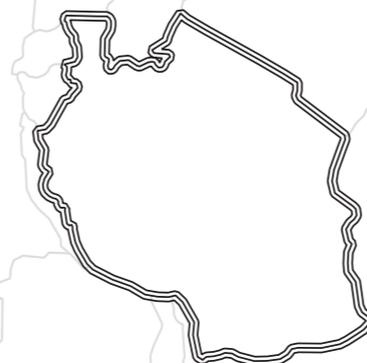
Total Project Budget
EUR 349 165

EEP Africa Financing
EUR 200 000

Type
Replication project
Cookstove

Project Code
TAN16023

Location
Tanzania



Outcome and Impact

The project will expand access to briquettes that are cheaper, longer-lasting and produce more heat than firewood or charcoal. This will reduce deforestation, lower health risks and generate cost savings of 35-50% for

customers. The project is estimated to reduce 38,300 tCO₂e emissions and create 100 jobs, with 72% of the leadership positions held by women.



KTF Concept

Project Developer
KTF Concept

KTF Concept is a local, women-led clean cooking start-up that produces biomass pellets and energy efficient cookstoves in Burundi.



Technology
Cookstove
Solid biomass

BEYOND CHARCOAL: HEALTHY COOKING WITH BIOMASS PELLETS

This project will enhance access to clean cooking in Burundi by increasing the production capacity of a biomass pellet plant. KTF Concept will add 200 kW of solar power and a pellet machine to its production facility. This will address challenges due to power outages and raise capacity from 1 tonne to 10 tonnes per day. The pellets, made primarily from rice husks, will be sold with a pyrolytic cookstove also manufactured on-site. The project will provide microfinancing and post-sales service to low-income customers. With EEP Africa financing, KTF Concept will be able to demonstrate its holistic cooking solution and reach more households.

Total Project Budget
EUR 603 241

EEP Africa Financing
EUR 355 000

Project Partners
CORILAC Microfinance,
GIZ

Type
Demonstration project
Cookstove

Project Code
BUR16407

Location
Burundi



Outcome and Impact

The switch to cleaner fuel and more efficient cookstoves will improve household health and safety in rural Burundi. The project aims to create 40 jobs and provide access to clean

cooking for 27,645 people. This would reduce 62,570 tonnes of CO₂e emissions per year and generate annual cost savings of EUR 108 per customer.



Project Developer
Mandulis Energy

Mandulis Energy is a Ugandan-founded company that develops renewable energy projects in emerging economies and deploys new technologies and approaches to address the energy access 'trilemma'.



Technology
Biogas
Waste-to-Energy

BIOENERGY POWERING AGRICULTURE AND RURAL LIVELIHOODS (BEPPEARL)

This project aims to demonstrate an innovative technology and business model for converting agricultural waste into electricity and biogas for households and small businesses. A Ugandan aggregator and processor of farm produce will provide feedstock and serve as the anchor client. The electricity generated by the installed biodigester will power grain mills at the agro-processing facility, as well as a microgrid for local households. The biogas will be stored in pressurised gas cylinders and sold to schools, hospitals, businesses and households for cooking. EEP Africa financing will enable Mandulis Energy to cover the high capital expenditure required for the digester and mini-grid.

Total Project Budget
EUR 1 675 900

EEP Africa Financing
EUR 500 000

Project Partners
REPARLE Ltd.,
HoST BV

Type
Demonstration project
Mini-grid stand-alone

Project Code
UGA16793

Location
Uganda



Outcome and Impact

This project will demonstrate a circular economy model that improves the income of 4,000 small farmers, of which 50% are women. Affordable electricity will be provided to 75 households, public entities and C&I clients

and cooking gas will be sold to 550 customers. By displacing diesel, wood and charcoal, the project expects to reduce 4,555 tonnes of CO₂e emissions per year and generate significant savings on energy-related costs.



SOLAR SARDINE FISHING ON LAKE VICTORIA

Project Developer
Millennium Engineers

Millennium Engineers is a local, women-led renewable energy start-up specialising in solar and wind technologies that was launched via the University of Dar es Salaam.



Technology
Solar PV

This project will improve the productivity of the low-income sardine fishing industry at Lake Victoria. Millennium Engineers will replace kerosene lamps for night fishing with solar-powered LED lamps and establish sardine drying facilities that use a combination of solar and wind power to significantly shorten the drying cycle. The project aims to distribute 400 solar lamps and establish efficient drying facilities on two island sites and on the mainland in Mwanza. In collaboration with partners, Millennium Engineers will conduct capacity building and skill training to integrate more women into the fishing value chain. EEP Africa financing will enable this start-up to develop its business model and attract commercial financing.

Total Project Budget
EUR 500 000

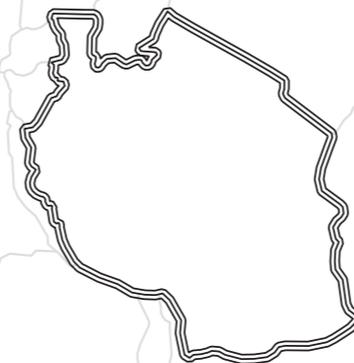
EEP Africa Financing
EUR 350 000

Project Partners
Sagar Energy Solutions, Fishers Union Organization, Afrcan Women Energy Entrepreneurship Framework

Type
Demonstration project
Stand-alone

Project Code
TAN16543

Location
Tanzania



Outcome and Impact

The switch away from kerosene lamps will improve health and food security by reducing respiratory problems and fish contamination. At full sales the project is expected to reduce CO₂e emissions by 1,972 tonnes. Lower costs for

fuel will increase margins and income for 1,000 fishers, stimulating economic development in their communities. The project will also create more income opportunities for local women.



Project Developer
Mobility for Africa

Mobility for Africa is a women-led start up registered in Zimbabwe that is developing renewable community-based transport solutions for Africa.



Technology
Solar PV

OFF-GRID RENEWABLE ENERGY RURAL MOBILITY PLATFORM

This project will scale up an e-mobility pilot in Zimbabwe providing electric three-wheeled vehicles to rural customers, mainly women, on a rent-to-own and lease basis. Mobility for Africa's e-tricycles are optimised for local conditions and can carry up to 400 kg, which improves access to markets and services for smallholder farmers and entrepreneurs. The vehicles run on bespoke long-life batteries charged by renewable energy. EEP Africa financing will enable Mobility for Africa to establish two solar-powered charging stations and set up a fleet management system with small scale dairy farmers in Chipinge District and with egg producers in Goromonzi District.

Total Project Budget
EUR 862 234

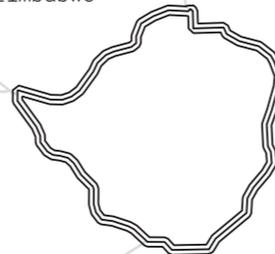
EEP Africa Financing
EUR 500 000

Project Partners
Daribord Holdings, We Effect, Association of Dairy Farmers, LMAC

Type
Scale-up project
Stand-alone

Project Code
TAN16663

Location
Zimbabwe



Outcome and Impact

The project will establish two charging stations for participating vehicle owners and roll out 150 e-tricycles. The e-tricycles will also have the capability to power off-grid agri-

related appliances. The project will advance productive use of energy in rural communities and improve access to markets and income opportunities for women.

Project Developer
OneLamp

OneLamp is a locally-owned Ugandan company focusing on last mile clean energy distribution.



Technology
Solar PV

PRODUCTIVE SOLAR ENERGY FOR DAIRY FARMERS

This project will pilot a solar-powered refrigeration and milk storage solution for dairy farmers in Western Uganda. Of the country's 2.5 million small dairy farmers, 85% lack access to affordable cold storage, resulting in spoilage and significant losses in earning potential. OneLamp's system consists of a 650W solar home system with lithium battery, bundled with LED lights, a television and a 402 litre milk cooler. Each unit provides capacity for up to 10 cows. Dairy farmers can purchase the system through an affordable, mobile-enabled lease-to-own model. EEP Africa financing will enable OneLamp to expand market coverage and broaden its product and service offering.

Total Project Budget
EUR 586 012

EEP Africa Financing
EUR 350 000

Project Partners
Tongbo, Omnicvoltaic, Solaris

Type
Pilot project
Stand-alone

Project Code
UGA16434

Location
Uganda



Outcome and Impact

OneLamp aims to distribute 200 units, with at least 50% sold to women-led dairy farms as early adopters. The systems directly contribute to increasing income earning opportunities and improving productivity through value-

added dairy products such as yoghurt and butter. The annual savings on energy-related expenditure are expected to be EUR 9,170 per dairy farm. The project has significant potential for scale-up.



Project Developer
OnePower Lesotho

OnePower Lesotho is a renewable energy start-up providing affordable and reliable electricity services to off-grid communities, giving families, schools, health clinics and local businesses the opportunity to thrive.



Technology
Solar PV

UNLOCKING PRODUCTIVE USES OF ENERGY FOR WOMEN IN LESOTHO

This project aims to advance inclusive and productive use of energy through a women-led productive use of electricity company (PUECO) in Lesotho. The PUECO will support the creation of women-owned local enterprises and develop a last-mile supply chain for energy efficient appliances in three communities served by OnePower solar mini-grids. The PUECO will provide local women entrepreneurs with training and starting capital to become anchor customers for the mini-grids. Local women will also be recruited to retail energy efficient appliances. EEP Africa financing will enable One Power to pilot this model and demonstrate the value of integrating a PUECO with mini-grid construction.

Total Project Budget
EUR 350 830

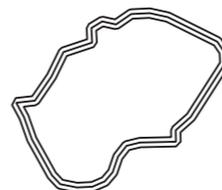
EEP Africa Financing
EUR 212 253

Project Partners
Essmart Global,
National University of
Lesotho

Type
Pilot project
Mini-grid stand-alone

Project Code
LES16210

Location
Lesotho



Outcome and Impact

The project will support 12 women entrepreneurs to create energy-enabled businesses in three communities, serving a population of more than 5,000 people. The project also aims to distribute over 450 energy efficient

appliances and create 40 new jobs, with 70% earmarked for women. If successful, this model will be replicated and scaled-up to 10 new mini-grids that OnePower is developing in Lesotho.



Project Developer
OVO Solar Technologies

OVO is a Canadian start-up that aims to empower smallholder farmers by providing affordable, income-generating products that will help break the cycle of poverty.



Technology
Solar PV

PAYGO SOLAR EGG INCUBATORS FOR SMALLHOLDER FARMERS

This project aims to improve the efficiency and productivity of the poultry value chain in Kenya. OVO will leverage local PAYGO distribution networks to bring solar-powered egg incubators to off-grid smallholder farms, with a focus on women farmers. The affordable solar incubators enable farmers to raise more chickens, which improves food security and increases income for rural families. This technology is innovative in the local market and has potential to be a driver of economic growth. The project will also provide training and facilitate access to markets. EEP Africa financing will enable OVO to test the technology at sufficient scale to assess the impact on farmer welfare and further develop the business model.

Total Project Budget
EUR 368 210

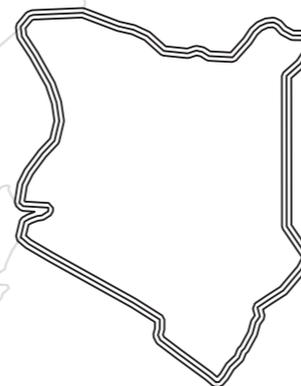
EEP Africa Financing
EUR 257 502

Project Partners
Mwezi
Eggpreneur

Type
Pilot project
Stand-alone

Project Code
KEN16509

Location
Kenya



Outcome and Impact

The project aims to distribute 1,000 products to help farmers diversify their income and improve climate resilience. Each OVO solar egg incubator is equipped with a 30W solar panel and consumes just 120 Wh/day. At target

sales the project will result in energy savings of 219 MWh/year and reduce greenhouse gas emissions by 62 tCO₂e/year. OVO will focus on women-to-women sales and 70% of direct jobs created will be targeted for women.



Project Developer
Phaesun GmbH

Phaesun is a German company operating in the field of renewable energy with a focus on rural electrification, solar water supply, and the use of off-grid renewable energies for industrial applications and the leisure market.



Technology
Solar PV

SELFCHILL ZAMBIA AND TANZANIA

This project aims to introduce intelligent solar-powered cooling solutions to improve food safety, reduce waste and increase income among small-scale farmers in Zambia and Tanzania. Phaesun will install cooling systems based on the SelfChill concept to cool dairy (milk tank), agricultural products (cold room) and fish (ice maker). These demonstration units will provide services to agricultural cooperatives through a PAYG system. The project also aims to sell smaller cooling systems and units to local smallholder farmers. EEP financing will enable Phaesun to establish local assembly lines and provide technical training through partners to develop local capacity in design, assembly, installation and maintenance of solar cooling solutions.

Total Project Budget
EUR 586 060

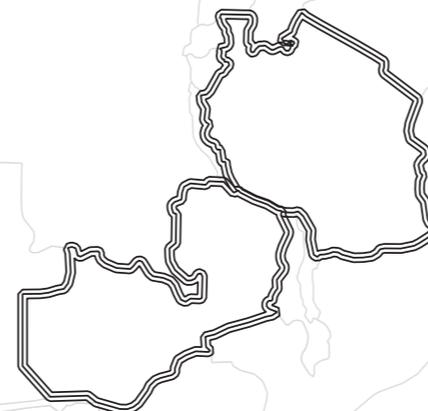
EEP Africa Financing
EUR 410 242

Project Partners
Solar Cooling Engineering UG, Fountain Gate Crafts & Trades School, id Solar Solutions Ltd, RESCO Ltd

Type
Demonstration project
Stand-alone

Project Code
REG16607

Location
Tanzania, Zambia



Outcome and Impact

The project will provide access to chilling services to over 160 smallholder farmers, ensuring less waste due to spoilage, better agricultural efficiency and improved food safety. The systems will generate 73 MWh of clean

energy per year and reduce GHG emissions by at least 52 tCO_{2e}. The project will provide training and create local jobs, significantly contributing to capacity building in the clean energy sector in Tanzania and Zambia.



Project Developer
Plentify

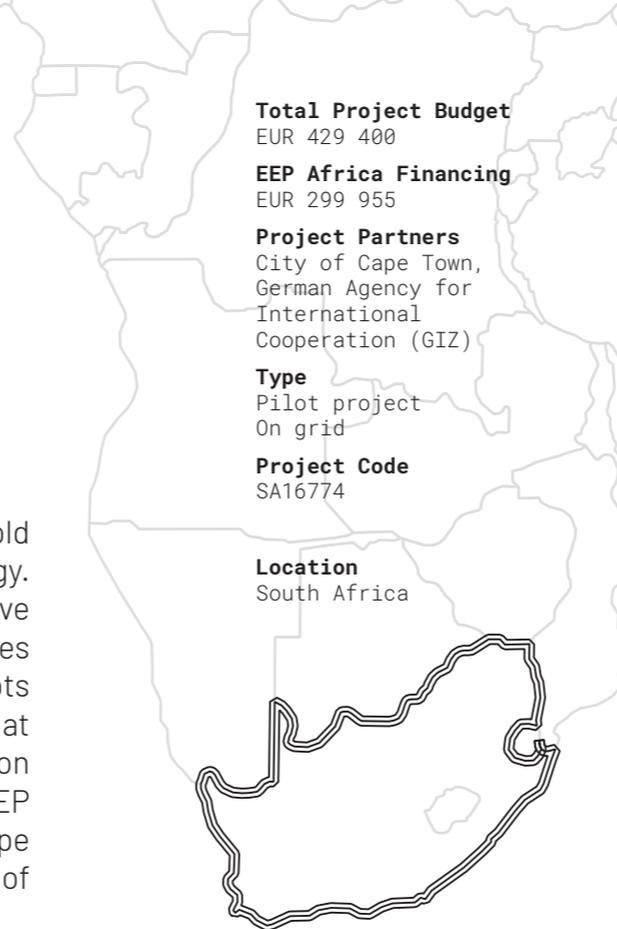
Plentify is an energy technology company in South Africa that enables smarter, cleaner and cheaper electricity through a smart home platform that adapts to user behaviour and the needs of the grid.



Technology
Energy Efficiency

TRANSFORMING WATER HEATERS INTO INTELLIGENT BATTERIES

This project will pilot an innovative technology that transforms household water heaters into intelligent thermal batteries for smart, clean energy. Electric water heaters waste half the energy they consume and drive up demand at peak times when solar is not an option. This contributes to South Africa's erratic, polluting and costly energy. Plentify's HotBots are smart devices that turn water heaters on only when needed and at optimal times for the electric grid. This shift in energy consumption improves efficiency and boosts solar capacity for municipalities. EEP Africa financing will enable Plentify to expand its pilot project in Cape Town and demonstrate the environmental impact and economic value of the new technology.



Outcome and Impact

The project will deploy HotBots into 500 homes in the City of Cape Town. Every HotBot saves 1 MWh in energy and 1 tonne in CO_{2e} emissions per year. This project brings together public and private partners to improve energy

reliability and efficiency in South Africa. This will accelerate the adoption of renewable energy and reduce the cost of electricity and hot water for households and businesses.



CATALYSING UPTAKE OF WASTE-TO-ENERGY IN KENYA

Project Developer
Sanivation

Sanivation is a Kenyan social enterprise, a subsidiary of a US company, that partners with local governments to meet the growing waste processing and fuel needs of urbanising communities.



Technology
Solid Biomass, Waste-to-energy

This project will scale up an existing waste-to-energy plant in Kenya through a public-private partnership with the local sewage provider. Sanivation uses an innovative circular economy approach in the conversion of fecal sludge to solid fuel briquettes. The plant will be expanded to 12 times its current capacity and the briquettes will be sold to schools, tea and dairy farms, textile and cement factories, and other local businesses. EEP Africa financing is expected to have a catalytic impact in unlocking public and private investments by demonstrating the commercial viability of a waste-to-energy factory at scale.

Total Project Budget
EUR 2 564 726

EEP Africa Financing
EUR 499 999

Project Partners
Naivasha Water and Sanitation Company

Type
Scale-up project
Stand-alone

Project Code
KEN16505

Location
Kenya



Outcome and Impact

The project will generate 7 MW of clean energy and reduce over 38,000 tCO₂e emissions. Briquette customers are estimated to save up to 38% in energy related expenditures. The

project will create over 200 jobs and 50% of the Sanivation sales team are women. The business model has high potential for rapid scale-up across Kenya.



Project Developer
SokoFresh Agri
Innovations

SokoFresh is a Kenyan-registered social enterprise that offers cold storage solutions and a digital market linkage platform to small and medium-scale farmers.



EMPOWERING ZERO FOOD LOSS

This project aims to strengthen the agricultural value chain in Kenya through a cold-storage-as-a-service business model. SokoFresh will pilot an integrated approach to refrigeration, aggregation of produce, food processing and market linkages for smallholder avocado farmers. The project will install six containerised, solar PV cold storage units and two solar-powered avocado oil extraction facilities. Farmers will have access to these facilities on a rental basis and be connected to buyers and markets for a small service fee. The project will be implemented in partnership with Enviu, Avomeru and Ecozen. EEP Africa financing will enable SokoFresh to test this pay-as-you-store model, with the goal of scaling up to fill a clear market gap.

Total Project Budget
EUR 658 443

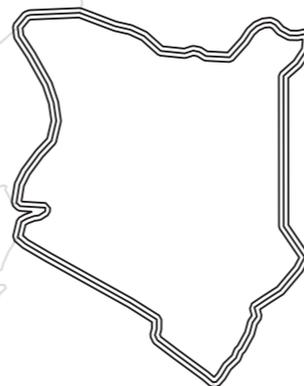
EEP Africa Financing
EUR 457 676

Project Partners
Enviu, EcoZen, Avomeru,
TruTrade, Makueni County

Type
Pilot project
Stand-alone

Project Code
KEN16768

Location
Kenya



Outcome and Impact

The project expects to improve the avocado value chain from collection to market through productive use of clean energy. The cold storage and processing facilities will reduce

food losses and improve the quality and value of products reaching the market. This will reduce the strain of agriculture on the climate and increase farmer income by 30-50%.



Project Developer
Solarworx

Solarworx is a German manufacturer of modular off-grid solar products that provide reliable, affordable and sustainable energy solutions to rural households and entrepreneurs.



Technology
Solar PV

SOLAR SMART GRID

This project will pilot a decentralized smart grid based on interconnecting solar home systems (SHS). Solarworx and its local partner LittleSun will install SHS that can be stacked like Lego bricks in high-density communities. These will then be connected to form a decentralized 60V solar smart grid. The solution enables power trading between producers of excess electricity and consumers. This power trading supports productive use appliances (up to Tier 4) across the grid. The cost for each connection is considerably lower than for AC mini-grids, enabling bottom-of-the-pyramid households to receive a grid-like electricity connection. This innovative technology has been tested in the lab and EEP Africa financing will enable it to be piloted in a real operating environment.

Total Project Budget
EUR 310 095

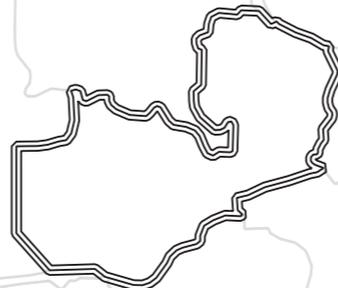
EEP Africa Financing
EUR 208 680

Project Partners
LittleSun Zambia

Type
Pilot project
Mini-grid stand-alone

Project Code
ZAM16986

Location
Zambia



Outcome and Impact

The project aims to distribute up to 300 SHS/ connection points to rural households, which will upgrade SHS owners to small-scale independent power producers (prosumers) and extend access to higher tiers of electricity

in the community. With 45 kW clean energy capacity, this project will reduce GHG emissions by 100 tCO_{2e} per year. The partners aim to recruit 50% women sales agents.



Project Developer
Taatisolar Namibia

Taatisolar is a women-led Dutch-Namibian joint venture that is importing and distributing solar home systems and DC solar-powered appliances to off-grid markets in Namibia.



Technology
Solar PV

ACCELERATING THE ADOPTION OF SOLAR-POWERED REFRIGERATION

This project aims to expand the use of solar refrigeration appliances in off-grid areas of Namibia. Taatisolar will scale-up sales to rural and peri-urban households and institutions, facilitated by financing options such as micro-lending and hire-purchase solutions. The innovative refrigeration technology can be used for a range of services, from food preservation to vaccine storage, and the project will pilot refrigeration solutions in 25 rural health clinics. Taatisolar will engage women's cooperatives to promote stand-alone solar refrigeration, and will target women-run micro-shops as potential clients. EEP Africa financing will enable the company to reach rural clients and health clinics with novel marketing approaches.

Total Project Budget
EUR 373 106

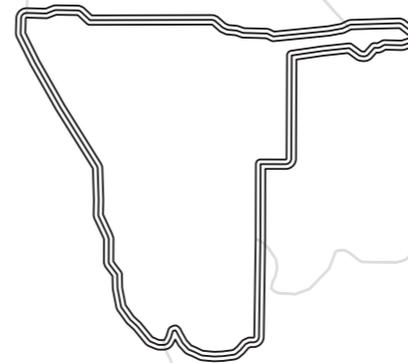
EEP Africa Financing
EUR 210 000

Project Partners
n/a

Type
Scale-up project
Stand-alone

Project Code
NAM16920

Location
Namibia



Outcome and Impact

The project aims to sell 250 solar refrigeration units in rural and peri-urban communities. At full scale, the project expects to save 46 MWh per year and reduce over 900 tCO_{2e} emissions.

The project will improve health outcomes by piloting solar refrigeration for vaccines and medicines at off-grid clinics. Local women will be trained as DC solar technicians, creating green jobs and promoting the role of women in the energy sector.





Project Developer
Techno Plus

Techno Plus is a local start-up developing innovative aquaculture production methods in photovoltaic greenhouse units.



RUKOVA: GREENHOUSE AQUACULTURE

This project will pilot an innovative approach to fish farming that uses clean energy for greenhouse aquaculture. Rukova will use Recirculating Aquaculture Systems (RAS), which reduce the use of water and land, to transition towards a more sustainable and efficient fish protein value chain. The 100 kWp solar PV greenhouses will catalyse aquaculture and energy production at the same site. Local women will be trained in solar maintenance and low-input horticulture, and produce from the project will be sold on the local market. The project also aims to provide refrigeration service to local fish sellers. EEP Africa financing will support the infrastructure investments needed to catalyse private investment.

Total Project Budget
EUR 808 050

EEP Africa Financing
EUR 490 000

Type
Pilot project
Mini-grid stand-alone

Project Code
ZWE16208

(Contract pending)

Location
Zimbabwe



Outcome and Impact

The project will support a circular economy by reducing land and water use while improving food security and nutrition. It will increase revenue for local fish sellers and horticulturalists and provide income

opportunities for women and youth. The solar mini-grid is expected to generate 0,1 MW of clean energy and prevent 110 tCO₂e emissions.



Project Developer
Tespac

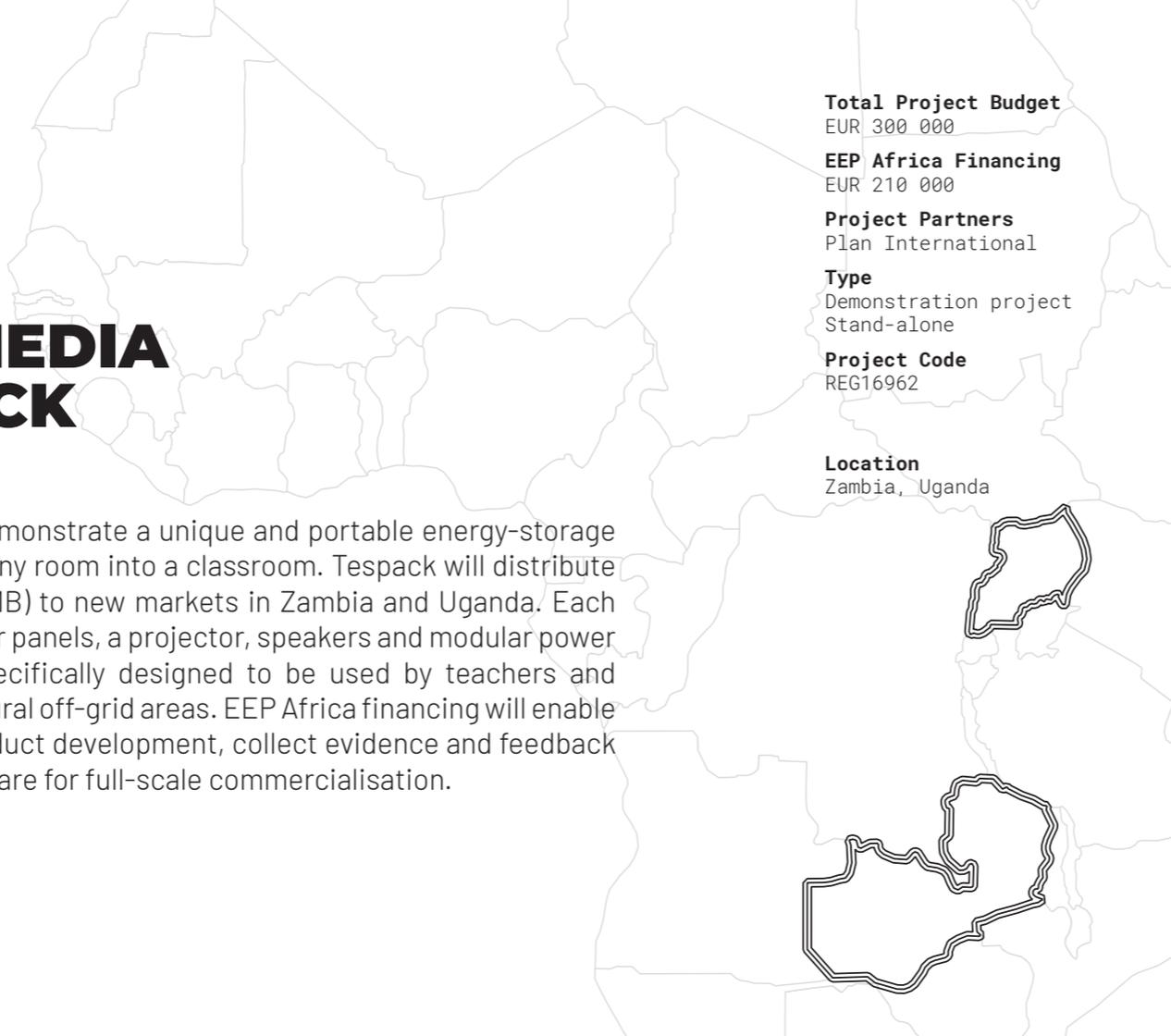
Tespac is a Finnish company that designs and manufactures portable, solar-powered, energy-storage solutions for off-grid workers.



Technology
Energy Efficiency

SOLAR MEDIA BACKPACK

This project aims to demonstrate a unique and portable energy-storage solution that can turn any room into a classroom. Tespack will distribute its Solar Media Bag (SMB) to new markets in Zambia and Uganda. Each SMB includes 80 W solar panels, a projector, speakers and modular power banks. The SMB is specifically designed to be used by teachers and healthcare workers in rural off-grid areas. EEP Africa financing will enable Tespack to finalise product development, collect evidence and feedback from the field, and prepare for full-scale commercialisation.



Total Project Budget
EUR 300 000

EEP Africa Financing
EUR 210 000

Project Partners
Plan International

Type
Demonstration project
Stand-alone

Project Code
REG16962

Location
Zambia, Uganda



Outcome and Impact

This project will deploy 10 units of the Solar Media Bags to test and refine the business model. The product has strong potential to contribute to improved education and health by providing a portable electricity solution for

schools, clinics and humanitarian agencies in off-grid areas. There is high potential for scale-up and Tespack aims to secure investments for a full commercial roll-out.

Project Developer
The Waste Transformers

The Waste Transformers is a Dutch company that develops containerised anaerobic digesters to enable businesses and communities to transform food waste into green energy and organic fertiliser on-site.



Technology
Waste-to-Energy,
Biogas

ENERGY AND WATER FOR SUSTAINABLE AND CIRCULAR FOOD SYSTEMS

This project will demonstrate an innovative food waste-to-energy solution for powering water pumps and food processing in rural Uganda. The Waste Transformers' small-scale, containerised anaerobic biodigester will convert agricultural and fish waste into clean energy at a local fishery. The biogas produced will power pumps to transport water from local sources to fish farming ponds and then pump the wastewater from the ponds to irrigation systems for smallholder farmers. The digester will also generate heat for fish processing and produce organic fertiliser to increase crop yield and long-term soil health. EEP Africa financing will enable testing and validation of the system and open the path for a commercial roll-out.

Total Project Budget
EUR 1 078 831

EEP Africa Financing
EUR 500 000

Project Partners
SkyFox Ltd, Uganda
Cooperative Alliance, Just
Clean It Ltd

Type
Demonstration project
Stand-alone

Project Code
UGA16859

Location
Uganda



Outcome and Impact

The project provides a circular solution to turn farm waste into productive energy that supports irrigation and food preservation. The system will generate 0.3 MW of energy and enhance access to water for over 500 crop and

fish-pond farmers. By diverting food waste from landfills, the biodigester will reduce 635 tCO_{2e} emissions per year. The project has high potential for scale up in Uganda and other countries.



SOLAR POWERED COMMUNAL REFRIGERATION

Project Developer
Tree_Sea.mals

Tree_Sea.mals is a local, women-led company that utilises renewable energy solutions to link communal markets and agribusiness processors to cold chain.



Technology
Solar PV

This project will pilot solar-powered cold storage in the livestock value chain. Using a B2B model, Tree_Sea.mals will target Nairobi meat markets that source from low-income pastoralist groups in Northern Kenya. The pilot will be the Burma market, which trades over 2,500 carcasses per week and is the main retail outlet for butcheries handling 93% of household meat purchases. The project will set up PAYG units with 15 kWp and the capacity to cool 864 tonnes of meat per year. These will provide the anchor load for a solar PV mini-grid and reduce post-slaughter food loss by about 288 tonnes per year. EEP Africa financing will cover capex costs, enabling this start-up to develop and prove its innovative business model.

Total Project Budget
EUR 290 000

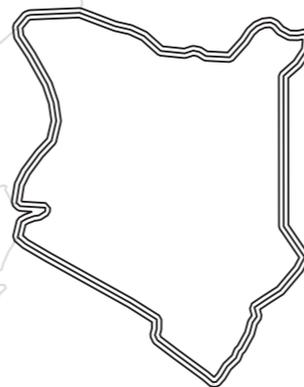
EEP Africa Financing
EUR 200 000

Project Partners
Wings of Empowering Pastoralists, Accent Cooling, Knights Energy, VE Energy, Kenya Meat Commission, TLO Law, Nairobi City Council

Type
Pilot project
Stand-alone

Project Code
KEN16152

Location
Kenya



Outcome and Impact

Three cold storage units will serve up to 156 meat traders at the market. The switch from current cold storage technologies to a shared solar-powered cooling solution is expected to

reduce energy costs by EUR 23,750 per year. The project also aims to reduce emissions by over 77 tonnes of CO₂e per year and create 36 new jobs.



Project Developer
Water Access Rwanda

Water Access Rwanda is a local, women-led social enterprise that is committed to eradicating water scarcity by providing appropriate technologies for durable and affordable access to clean water.



Technology
Solar PV

PROJECT IJABO

This project aims to pilot a franchise model for irrigation-as-a-service to support small rural farmers living uphill or far from surface water sources. The project will create 12 franchises to manage a solar-powered irrigation solution tailored to the geography of Rwanda, where traditional irrigation is difficult. The pumps will bring water from the valley to a hilltop storage area, where it will be distributed by gravity to small groups of farmers. The estimated irrigation area is 60 ha daily and the irrigation kits use prepaid meters to provide flexible sales based on the volume of water used by each farmer. EEP Africa financing will cover the upfront capex costs needed to test this business model at scale.

Total Project Budget
EUR 297 558

EEP Africa Financing
EUR 204 501

Type
Pilot project
Stand-alone

Project Code
RWA16941

Location
Rwanda



Outcome and Impact

The project will improve productivity by increasing yields for at least 150 farmers and provide regular income for 12 franchise owners, of which a majority will be women entrepreneurs. The technology will improve food security and

climate resilience, while reducing an estimated 416 tCO₂e emissions by replacing diesel pumps. The irrigation kits can also include filters for clean drinking water.



Project Developer
Witech Africa

Witech Africa is a South African company that develops waste management solutions and deploys waste-to-energy technologies suitable for small to large-scale applications in Africa.



Technology
Waste-to-Energy,
Biogas

MUSTAPHA ENERGY: CONVERTING RESIDUAL WASTE IN CAPE TOWN

This project will assess the feasibility of a modular waste-to-energy plant in the Athlone industrial area of Cape Town. The proposed plant would generate 2.7 MW of electricity and thermal energy from municipal solid waste, using an innovative technology developed by a Finnish company. The facility will be designed to apply an integrated approach to electricity and thermal energy for municipalities and industrial off-takers. The project will also consider gasification as a comparative or supplemental technology. Witech also plans to establish a local non-profit to educate schoolchildren and the community about waste management. EEP Africa financing will support the research and studies needed to develop a bankable project.

Total Project Budget
EUR 350 000

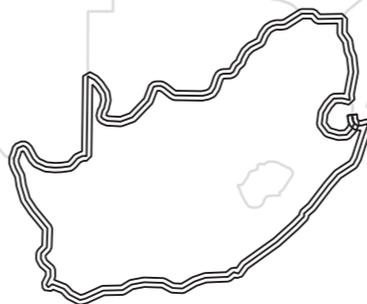
EEP Africa Financing
EUR 200 000

Project Partners
WOIMA Corporation Oy,
Waste Mart, Waste
Transformation 4
Energy Association,
ENCHA & Mahube
Infrastructure Fund,
WDC

Type
Feasibility study
On grid

Project Code
SA16077

Location
South Africa



Outcome and Impact

This would be the first plant in South Africa to use moving grate incineration technology to turn municipal solid waste into energy. When operational, the plant will divert more than 60,000 tonnes of waste from Cape Town

landfills, significantly reducing GHG emissions. The project has the potential to transform waste management in South Africa and provide clean energy to industrial clients and the grid, reducing the need for load shedding.

Portfolio by Country

Burundi

KTF Concept [20]

Kenya

EkoRent Africa [10], OVO Solar Technologies [32], Sanivation [38], SokoFresh [40], Tree_Sea.mals [52]

Lesotho

OnePower Lesotho [30]

Malawi

Green Impact Technologies [16]

Mozambique

Gommyr Power [14]

Namibia

Taatisolar [44]

Regional

ASOBO [6], Phaesun [34], Tespack [48]

Rwanda

Water Access Rwanda [54]

South Africa

Plentify [36], Witech Africa [56]

Tanzania

ENdep [12], HannyG Investment [18], Millennium Engineers [24], Mobility for Africa [26]

Uganda

Mandulis Energy [22], OneLamp [28], The Waste Transformers [50]

Zambia

Solarworx [42]

Zimbabwe

Clamore Solar [8], Techno Plus [48]

Portfolio by Theme

Agricultural Productivity

Clamore Solar [8], Millennium Engineers [24], OVO Solar Technologies [32], Water Access Rwanda [54]

Clean Cooking

HannyG Investment [18], KTF Concept [20]

Cold Storage

ENdep [12], OneLamp [28], Phaesun [34], SokoFresh [40], Taatisolar [44], Tree_Sea.mals [52]

e-Mobility

ASOBO [6], EkoRent Africa [10], Mobility for Africa [26]

Energy Storage

Plentify [36], Tespack [48]

Productive Mini-grids

Gommyr Power [14], OnePower Lesotho [30], Solarworx [42], Techno Plus [48]

Waste-to-Energy

Green Impact Technologies [16], Mandulis Energy [22], Sanivation [38], The Waste Transformers [50], Witech Africa [56]

Portfolio by Technology

Biogas

Green Impact Technologies [16], Mandulis Energy [22], The Waste Transformers [50], Witech Africa [56]

Biomass (solid)

HannyG Investment [18], KTF Concept [20], Sanivation [38]

Energy Efficiency

ASOBO [6], Plentify [36], Tespack [48]

Solar PV

Clamore Solar [8], EkoRent Africa [10], ENdep [12], Gommyr Power, Millennium Engineers [24], Mobility for Africa [26], OneLamp [28], OnePower Lesotho [30], OVO Solar Technologies [32], Phaesun [34], SokoFresh [40], Solarworx [42], Taatisolar [44], Techno Plus [48], Tree_Sea.mals [52], Water Access Rwanda [54]



SokoFresh will integrate solar-powered cold storage and processing solutions in the avocado value chain in Kenya.



Fund Manager

The **Nordic Development Fund (NDF)** is both Fund Manager and funding partner for EEP Africa. NDF is the joint Nordic climate and development finance institution established by the governments of Denmark, Finland, Iceland, Norway and Sweden.

The purpose of NDF is to advance Nordic leadership in addressing climate change and development challenges through financing, knowledge and partnerships. Together with strategic partners, NDF develops, launches and scales high-impact projects to support developing countries and the most vulnerable people affected by climate change. Headquartered in Helsinki, NDF provides flexible, catalytic financing for climate change mitigation and adaptation in lower income and countries in fragile situations with focus on Sub-Saharan Africa.

Funding Partners

The **Austrian Development Agency (ADA)** is the operational unit of Austrian Development Cooperation and has supported EEP Africa since 2010. ADA's goals prioritise reducing poverty, ensuring peace and contributing towards conservation of the environment with particular emphasis on gender equality and climate protection. ADA's focus themes, such as the water-energy-food security nexus and private sector development, are strongly supported by EEP Africa.



Ministry for Foreign
Affairs of Finland

The **Ministry for Foreign Affairs of Finland** administers Finland's ODA budget and hosted EEP Africa between 2010-2017. Finland's development policy supports the eradication of poverty and inequality and the promotion of sustainable development with particular focus on strengthening the rights of the most vulnerable, promoting gender equality and increasing the climate resilience of local communities. Enhancing access to sustainable energy is crucial in reaching these goals.



Taatisolar will engage women's cooperatives in Namibia to promote solar refrigeration and other off-grid appliances.

Contact Information

Nordic Development Fund
Fabiankatu 34
00171 Helsinki
Finland

info@eepafrica.org
<https://eepafrica.org>

Disclaimer

This material has been funded by Austria, Finland, and NDF. The views expressed in this publication do not necessarily reflect the donor governments' official policies.

Copyright © EEP Africa 2021

EEP Africa is hosted and managed by the Nordic Development Fund (NDF) with funding from Austria, Finland and NDF.



Ministry for Foreign
Affairs of Finland





IT IS POSSIBLE

www.eepafrica.org