

**ALTERNATIVE ENERGY DEPARTMENT KEY
MILESTONES REPORT**

**RURAL ELECTRIFICATION AND RENEWABLE ENERGY CORPORATION
(REREC)**

April, 2026

Table of Contents

1.0 Introduction	3
2.0 Renewable energy projects	4
2.1 Garissa Solar Plant 54.6 Mw (-0.33434, 39.60610)	4
2.1.1 Construction costs, funding and commissioning	4
2.1.2 Scope of works	4
2.2 Solar Mini-grids	6
2.3 Solar Water pumping	11
2.4 Solar High Masts and Street lighting	13
2.5 Solar for schools	17
2.6 Diesel power station and solar hybridization	18
2.7 Mini-grids upgrade	18

1.0 Introduction

The Rural Electrification and Renewable Energy Authority (REREC), is a state corporation established under Section 43 of the Energy Act, 2019. The Corporation's main mandate is to promote renewable energy and accelerate rural electrification throughout the country in order to provide electricity to all Kenyans as well as contribute towards sustainable socio-economic development of the country in the attainment of Vision 2030 and Bottom Up Transformation Agenda (BETA).

Article 43 (1) of the Energy Act 2019 establishes the Rural Electrification and Renewable Energy Corporation. The Act lists the functions and responsibilities of the Corporation (Article 44 (1)) as follows:

- (a) Oversee the implementation of the Rural Electrification Programme;
- (b) Manage the Rural Electrification Programme Fund established under section 143;
- (c) Source additional funds for the Rural Electrification Programme and renewable energy;
- (d) Develop and update the rural electrification master plans in consultation with County Governments;
- (e) Develop and update the renewable energy master plan taking into account county specific needs and the principle of equity in the development of renewable energy resources;
- (f) Support the establishment of energy centres in the counties;
- (g) Establish framework for collaboration with County Governments in the discharge of its mandate;
- (h) Undertake on-farm and on station demonstration of wood-fuel species, seedling production and management;
- (i) Undertake feasibility studies and maintain data with a view to availing the same to developers of renewable energy resources;
- (j) Develop, promote and manage in collaboration with other agencies, the use of renewable energy and technologies, including but not limited to biomass (biodiesel, bio-ethanol, charcoal, fuel-wood, biogas) municipal waste, solar, wind, tidal waves, small hydropower and co-generation but excluding geothermal;
- (k) Formulate, in conjunction with the Agency, a national strategy for coordinating research in renewable energy;
- (l) Undertake, in conjunction with the Agency, research, development and dissemination of appropriate renewable energy technologies;
- (m) Provide an enabling framework for the efficient and sustainable production, conversion, distribution, marketing and utilization of biomass, solar, wind, small hydros, and municipal waste;
- (n) Promote, in conjunction with the agency responsible for forests, the use of fast maturing trees for energy production including bio-fuels and the establishment of commercial woodlots including peri-urban plantations;

- (o) Promote, in collaboration with other agencies, the development of appropriate local capacity for the manufacture, installation, maintenance and operation of renewable technologies such as biodigesters, solar systems, turbines and other renewable energy technologies;
- (p) Promote international co-operation programmes focusing on renewable energy sources;
- (q) Harness opportunities offered under clean development mechanism and other mechanisms including, but not limited to, carbon credit trading to promote the development and exploitation of renewable energy sources;
- (r) Promote the development of electricity generation through co-generation by sugar millers;
- (s) Provide technical and other capacity building support to County Governments in the discharge of the function of electricity reticulation and energy regulation; and

2.0 Renewable energy projects

The Corporation, through the Alternative Energy Department has successfully undertaken the following renewable energy projects:

2.1 Garissa Solar Plant 54.6 Mw (-0.33434, 39.60610)

The Garissa Solar Plant which is the largest grid connected solar power plant in East & Central Africa is located in Balambala Constituency, Garissa County about 20 kilometres from Garissa Town. The solar farm sits on 85 hectares (210 acres) and consists of 206,272# 265Wp solar panels and 1,172# 42kW inverters.

2.1.1 Construction costs, funding and commissioning

Construction was undertaken by China Jiangxi International Economic and Technical Cooperation Co. Ltd EPC contractor under supervision of the Corporation, at a budgeted cost of KSh13.7 billion (\$135.7 million), and was funded by the Exim Bank of China.

The solar power plant was completed and connected to the Grid on 17th November 2018 and was officially launched by President Uhuru Kenyatta on 13th December, 2019.

2.1.2 Scope of works

The project scope of work included: Construction of a 132KV bay at 132/33/11KV Ketraco Substation; Installation of a 50 KW (Installed capacity is 54.65MW) solar generation plant complete, with Solar panels (206,232no panels of 265Wp), step up transformers and 33no x 0.415/33kV transformers; Construction of 5.7 km of 132KV transmission line with 16No. pylons (Towers) from the Solar Plant to Ketraco Substation; Construction of a 33#

0.415/33 KV substation at the Solar Plant and a 50 MVA 33/132KV step up transformers; Indoor 33kV switch room and control room for monitoring; CCTV installations for monitoring.

The following support facilities were also developed: Staff housing; Borehole with water treatment plant; Sewage treatment plant; Office block with a training and recreational centre; Road network; Weather station and Perimeter wall enclosing the whole plant



An aerial view of the Solar panels at the plant

2.1.3. Output and Power Purchase Agreement (PPA)

Total generation and export to grid is 632,414.66 MWh as at 22nd March, 2026.

REREC has signed a 25-year Power Purchase Agreement (PPA) with Kenya Power (KPLC) for purchase of power generated at the plant.

2.1.4. Transfer of O&M function to KenGen

Following a presidential taskforce recommendation in 2021, the plant O&M functions were transferred to KenGen from 1st December, 2021 and a transfer agreement signed on 11th February, 2022.

2.1.5 Future Prospects

Plans are underway for optimization of the plant by introducing a 50MW wind power project thus generating power day and night. Currently this project is contributing about 2% of the national energy mix and has significantly led to a reduction of energy costs in the

country thereby promoting the development of clean, reliable, sustainable and affordable electricity.

2.2 Solar Mini-grids

A mini-grid is a set of small-scale electricity generators interconnected to a distribution network that supplies electricity to a small, localized group of customers. It usually operates independently from the national transmission grid. Solar minigrids technology has been proved as a rough technology in energy access, particularly in rural areas, where they have become a viable option for providing reliable and high-quality electricity to rural populations and businesses.

2.2.1 GoK Funded Solar Mini-grids

The corporation has implemented Twenty-Seven (27) solar mini-grids across counties of Wajir, Turkana, Marsabit, Mandera and Garissa. The projects consist of solar PV system with battery storage and a back-up diesel generator to ensure quality and reliable power supply to the customers.

The projects are serving in excess of 3,693 customers including public facilities and provide other socio-economic benefits to communities living in these areas in education, health, entrepreneurship, employment, communication, water pumping and food preservation. This translates to major carbon emission reduction for the country because previously the connected customers used kerosene or biomass fuel as a source of light.

The Corporation is currently implementing a 150kW solar mini-grid with battery storage in Dadajabula town, wajir county and a 100kW solar mini-grid in Kibuogi Island, Homa Bay County. Once commissioned the projects will provide reliable power supply to approximately 350 homesteads, institutions and businesses in the towns and villages.

Item	County	Site	Constituency	Rating (kW)
1	Marsabit	Ambalo	Moyale	60
2		Illaut	Laisamis	60
3		Balesa	North Horr	60
4	Turkana	Eliye (Ille) Springs	Turkana -Central	60
5		Lowareng	Turkana -North	60

6		Letea	Turkana - West	60
7		Lopeduru	Turkana East	60
8		Kangangipur	Turkana S	60
9		Napelilim	Loima	60
10	Garissa	Sangailu	Ijara	60
11		Liboi	Dadaab	60
12		Eldera	Lagdera	60
13		Garsweino	Fafi	60
14	Mandera	Kiliwehiri	Banissa	60
15		Burduras	Mandera West	60
16		Gari	Lafey	60
17		Shimbir Fatuma	Mandera - S.	60
18		Ashabito	Mandera - N.	60
19		Arabia	Mandera -E.	60
20	Wajir	Biamadhow	Wajir North	60
21		Gurar	Wajir North	60
22		Hadado	Wajir West	60
23		Sarif	Wajir South	60
24		Basir	Elda	60
25		Riba	Wajir east	60
26		Sarman	Tarbaj	60
27		Buna	Wajir North	280
28		Dadajabula	Wajir South	150
29	Homa Bay	Kibuogi Island	Suba South	100
	TOTAL			



Fig 1-Kangangipur Solar Minigrid

2.2.2 Donor Funded Solar Mini-grids - KEMP

The overall objective of the KEMP project is to increase access to electricity in all areas in the country in an effort to achieve universal access to energy. The Rural Electrification and Renewable Energy Corporation (REREC) is implementing the solar mini grids subcomponent under the project (KEMP). The subcomponent entails development of seven (7) solar Mini grids in off- grid areas for connection of customers and households in areas that are not likely to be connected to grid electricity in the medium and short term.

The total project financing is US\$10M comprising of US\$2.5M from the World Bank credit and US\$7.5M grant from Strategic Climate Funds (SCF) Scaling-Up Renewable Energy Program (SREP).

Table 7: Mini grid sites, Cost and estimated Number of Customers

#	Mini Grid Site Name:	County:	Installation Cost		No. of Customer Connection
			USD (\$)	Kshs.	
1	Takawiri	Homa Bay	411,638	3,757,854	415
2	Ngodhe	Homa Bay	339,355	2,753,560	223
3	Mageta	Siaya	218,3920	13,679,667	1744

#	Mini Grid Site Name:	County:	Installation Cost		No. of Customer Connection
			USD (\$)	Kshs.	
4	Wasini/Mkwiro	Kwale	2,319,852.6	10,855,146	542
5	Kerio	Turkana	530,083.23	6,862,101	227
6	Kaeris	Turkana	530,083.21	6,862,100.07	186
7	Dabel	Marsabit	530,083.2	6,862,101	613
	Total		6,845,015.24	51,632,529.07	3,950

Implementation of the mini grids are in progress. Four (4) of the Mini grids have critical parts completed and Commissioned ie Wasini/ Mkwiro in Kwale Country, Mageta Island in Siaya County, Takawiri Island and Ngodhe Island sites in Homa Bay County.

2.2.3 Donor Funded Solar Mini-grids - KOSAP

The Government of Kenya has received funding from the World Bank for the financing of the Kenya Off-Grid Solar Access Project for underserved counties (K-OSAP). The Project Development Objective is to increase access to modern energy services in underserved counties of Kenya. The project is being implemented in fourteen (14) underserved counties in the north, north eastern, and coastal parts of Kenya. These counties are Garissa, Isiolo, Kilifi, Kwale, Lamu, Mandera, Marsabit, Narok, Samburu, Taita Taveta, Tana River, Turkana, Wajir and West Pokot. The Project is being implemented by the Ministry of Energy and Petroleum (MoEP), Kenya Power and Lighting Company (KPLC), and Rural Electrification and the Renewable Energy Corporation - REREC.

The Corporation (REREC) is in the process of implementing the Design, Supply, Installation and Commissioning of Solar Photovoltaic Generation Plants with Associated Power Distribution Network (Mini-Grids) in Turkana, Marsabit, Samburu and Isiolo Counties in Kenya with 7 Years Operations and Maintenance (O&M) Services. The projects include;

No	REGION	Lot	NO. OF PROJECTS	County	Constituency	Site	MINIMUM PV CAPACITY (kWp)
1	NORTH RIFT	LOT 1	6	Turkana	Turkana North	Kaikor	175
2	NORTH RIFT			Turkana	Turkana North	Kanakurdio	75
3	NORTH RIFT			Turkana	Turkana North	Kibish	120
4	NORTH RIFT			Turkana	Turkana North	Kokuro	120
5	NORTH RIFT			Turkana	Turkana West	Oropoi	100
6	NORTH RIFT			Turkana	Turkana North	Nachukui	120
7	NORTH RIFT	LOT 2	6	Turkana	Turkana Central	Kalokol	450
8	NORTH RIFT			Turkana	Turkana South	Lochwaangiamatak	120
9	NORTH RIFT			Turkana	Turkana East	Lomunyenakwan	120
10	NORTH RIFT			Turkana	Loima	Lorengippi	75
11	NORTH RIFT			Turkana	Turkana Central	Namukuse	120
12	NORTH RIFT			Turkana	Turkana South	Naposimoru	100
13	MT. KENYA	LOT 3	5	Marsabit	Moyale	El Bor	30
14	MT. KENYA			Marsabit	Moyale	Dirdima	175
15	MT. KENYA			Marsabit	Saku	Kargi	160
16	MT. KENYA			Marsabit	Moyale	Bori	135
17	MT. KENYA			Marsabit	Moyale	Forolle	100
18	MT. KENYA	LOT 4	5	Marsabit	North Horr	El Gadhe	75
19	MT. KENYA			Marsabit	North Horr	Bubisa	250
20	MT. KENYA			Marsabit	Laisamis	Gatab	100
21	MT. KENYA			Marsabit	North Horr	Gas	100
22	MT. KENYA			Marsabit	Laisamis	South Horr	160
23	CENTRAL RIFT	LOT 5	4	Samburu	Samburu North	Latakweny	75
24	CENTRAL RIFT			Samburu	Samburu West	Barsaloi	120

25	CENTRAL RIFT			Samburu	Samburu North	Tuum	135
26	CENTRAL RIFT			Samburu	Samburu East	Sereolipi	200
27	UPPER EASTERN	LOT 6	5	Isiolo	Isiolo North	Eras Ha Boru	160
28	UPPER EASTERN			Isiolo	Isiolo South	Garfasa	160
29	UPPER EASTERN			Isiolo	Isiolo North	Kipsing	100
30	UPPER EASTERN			Isiolo	Isiolo South	Bassa	135
31	UPPER EASTERN			Isiolo	Isiolo South	Malkadaka	100

2.3 Solar Water pumping

2.3.1 GoK Funded

The Corporation in Collaboration with Kisumu and Nyeri county governments have implemented a solar water pumping project in 23 boreholes which were initially powered by grid or diesel generators. Some of the boreholes were not operational because they had been disconnected from power supply due to pending bills or the cost of running the diesel generators was too high. The solarization of the boreholes has been transformational to the community in many ways.



Fig 2:Nyeri borehole

2.3.2 Donor Funded

Under the KOSAP program, the corporation is solarizing 316 boreholes in fourteen (14) counties. They include;

LOT	Region	County	Number of Verified Recommended Boreholes	Aprox Solar Pv array Capacity(KWp)
1	UPPER EASTERN	Isiolo	6	187
	MT. KENYA	Marsabit	9	
2	COAST	Taita Taveta & Lamu	34	234
3	COAST	Kilifi & Tana River	57	152

4	COAST	Kwale	28	141
5	CENTRAL RIFT	Narok	35	429
6	CENTRAL RIFT	Samburu	18	148
7	NORTH RIFT	West Pokot	33	246
8	NORTH RIFT	Turkana	33	360
9	N/EASTERN & NAIROBI	Garissa	20	634
10	N/EASTERN & NAIROBI	Mandera	28	372
11	N/EASTERN & NAIROBI	Wajir	15	281

2.4 Solar High Masts and Street lighting

In line with Government BETA plan of promoting 24hour economy, REREC initiated a program to light up public places through solar powered street lights and high masts.

Solar street lights and high mast flood lights play a critical role in providing safety and promoting security in urban and in remote areas that don't have access to a conventional electrical grid. Solar street lights offer great cost savings to the Counties as there are no

power bills to be paid and require much less maintenance compared to conventional street lights. They are also social economic transformational because the beneficiary markets enjoy extended business hours.

The Corporation has installed 714 grid connected high masts, 354 solar powered high mast, 4,436 grid connected street lights and 4,750 solar street lights in various parts of the country in collaboration with the counties.



Fig 3: Solar highmast



Fig 4: Solar highmast



Fig. 5: Testing of solar highmast



Fig 6: Solar streetlights

2.5 Solar for schools

The Corporation was mandated to undertake electrification of all primary schools which didn't have power supply to facilitate the government Digital Learning Programme. As part of its support to program, the Corporation has provided solar powered electricity to 4,860 primary schools and 76 secondary schools.

The primary schools were installed with 1.8kW solar PV system while the secondary schools are installed with 3kW system. The Corporation has since adopted use of lithium-ion batteries which are more robust and a longer life span. Over the period 2,441 schools have been maintained

These projects have been a great support to education in the beneficiary schools because the students are able to contact evening studies more conveniently. This is expected to significantly improve the performance of the beneficiary schools. Teaching primary pupils digital literacy skills is very important because they need to be able to understand the technology that they use so that they can use it safely and effectively. In addition, this prepares them to future careers which will be largely digital.

2.6 Diesel power station and solar hybridization

Off-grid electrification provided by diesel generators was one of the first and most applicable solutions for the electrification of rural villages. The Corporation has installed twenty diesel power station to electrify off-grid areas. However, the cost of operating diesel generator is high. Diesel generators also produce large amount of carbon dioxide which is a major contributor of climate change.

The Corporation has installed 20 diesel power stations in various parts of the country. The corporation has also installed solar pv systems which were hybridized to the existing diesel generators in Takaba, Eldas, Rhamu and Laisamis power stations. This was aimed at increasing power affordability from the respective power stations and contribute to the Countries Nationaly Determine Contributions Carbon Dioxide Emission tragets.

The Corporation continue to do upgrades in these power stations as power demand in the respective markets and communities they are serving grow.

2.7 Mini-grids upgrade

Most of the mini-grids have been in operations for over 5 years and therefore the batteries have reached their end-life and are due for replacement. The towns supported by the mini-grids have also grown very fast due to presence of electricity and in some cases the demand has increased beyond the power plants capacities.

The Corporation has upgraded two mini-grids (Liboi and Ashabito) and replaced batteries in Arabia. The Corporation has also provided funding for the upgrade and battery replacement of 23 solar mini-grids in the 2024/25FY.



Fig 7: Battery replacements at Arabia

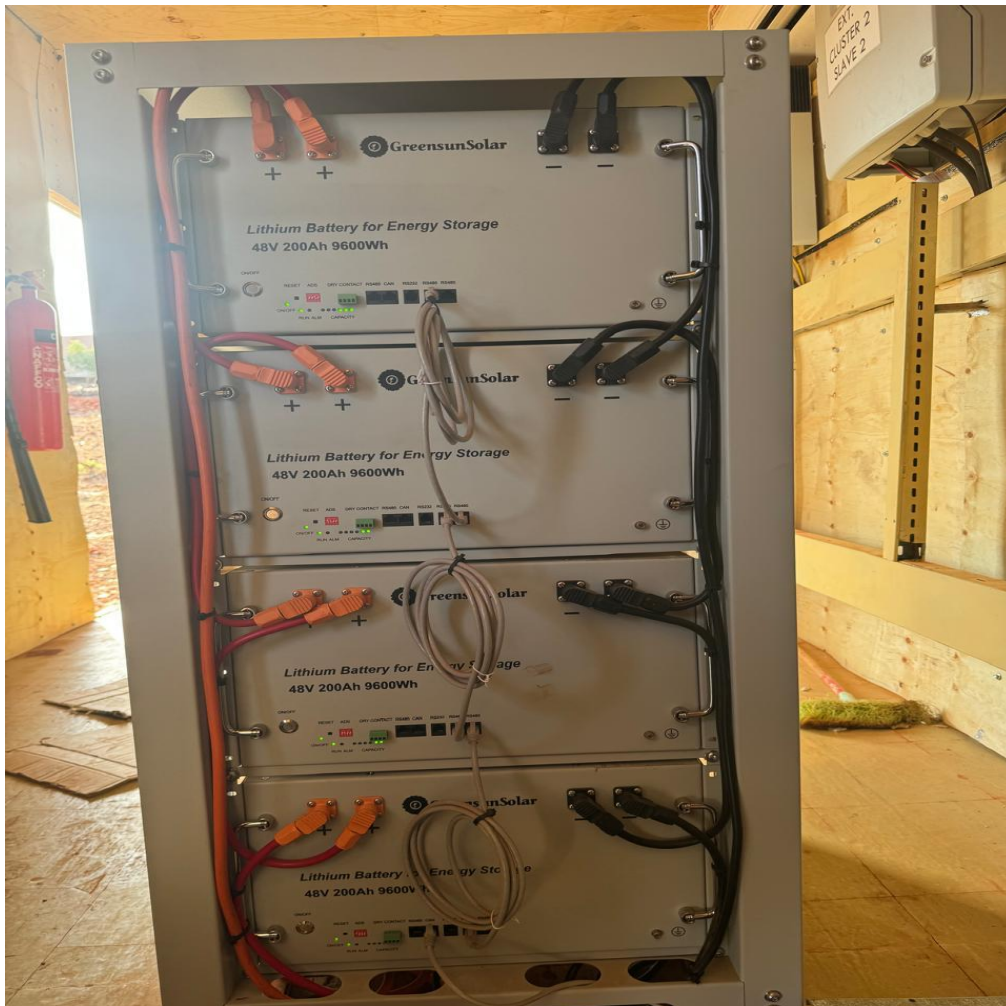


Fig 8: Battery replacements at Arabia

