Aloe Energy

COUNTRY BRIEF · NOVEMBER 2026

Malawi: grid and electricity access

Southern African Power Pool

15 M
people live without night-time light, a proxy for no power

98%
of them live within 15 km of a power line

2,700
km of high-voltage lines, 66 kV and above

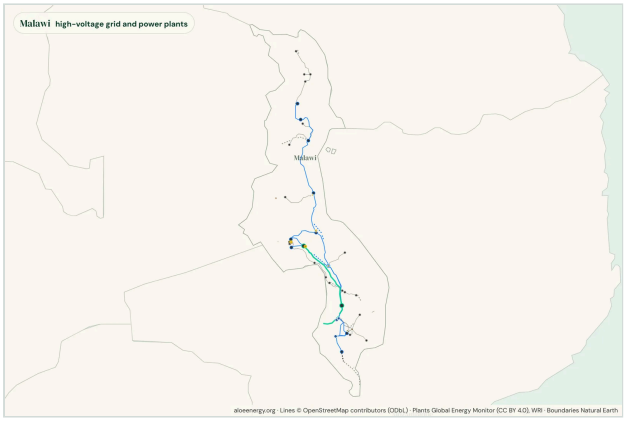
565
MW of operating power plants, 10 MW and above

19
power plants and transmission lines planned or under construction

Malawi has one of the lowest rates of electricity access in Southern Africa, and most of its power comes from a chain of hydro plants on the Shire River. About 15 million people live without night-time light, and 98% of them live within 15 km of a power line, so distance is rarely the main barrier: connection costs and supply are. The new 400 kV line from Mozambique, in final testing in 2026, links Malawi to the Southern African Power Pool for the first time.

WHAT THIS MEANS

To reach 70% electricity access by 2030, Malawi needs to add about 6 percentage points a year from 2023: from 26% today.



Map: Aloe Energy SAPP grid atlas. Lines © OpenStreetMap contributors (ODbL).

NEAR THE GRID, NOT ON IT

About 15 million people in Malawi, roughly 69% of the population, live where satellites see no electric light at night. Of them, 98% live within 15 km of a mapped or predicted power line: 5.2 million within 2 km, 9.4 million 2 to 15 km away, and 325,000 farther out. The largest group lives 2 to 15 km out: close enough to plan for the grid, too far for a quick connection. That is where mini-grids built to join the grid later can do the most good. At its 2016-2023 pace, about 0.3 percentage points a year (World Bank), Malawi would reach the 70% access target in its Mission 300 compact after 2050, not 2030; the target needs about 7.8 points a year.



Within 2 km of a line: **5.2 million** (35%)
2 to 15 km: **9.4 million** (63%)
More than 15 km: **325,000** (2%)

"Without night-time light" is a satellite proxy, not a measured access rate.

THE GRID TODAY

Malawi's mapped high-voltage network runs to about 2,700 km of lines at 66 kV and above, with 40 substations. The highest voltage on the map is 400 kV, and 10% of the line length runs at 220 kV or more. About 246 km come from older World Bank (2017) maps, used where OpenStreetMap has gaps. Installed capacity was about 580 MW (Jul 2026), and peak demand about 452 MW (Aug 2026).

Mapped line length

Voltage	km
400 kV	236
132 kV	1,145
66 kV	1,014
Voltage not recorded	58
Gap-fill from older public maps	246
Total	**2,700**

PLANTS AND PIPELINE

There are 11 operating power plants of 10 MW and above, adding up to about 565 MW, 62% of it hydro. The largest is Kapichira hydroelectric plant (130 MW, hydro). Another 17 plants totaling about 1,907 MW are under construction or planned, 431 MW of them under construction.

Operating capacity by type



Hydro: **351 MW** (62%) Oil: **103 MW** (18%)
Solar: **101 MW** (18%) Biomass: **10 MW** (2%)

Promised and now expected dates

Project	Type	MW	First promised	Now expected
Mozambique–Malawi interconnector (MoMa)	Line	-	2024	2026
Malawi–Zambia interconnector	Line	-	2028	2030

MISSION 300 COMPACT

Malawi's Mission 300 energy compact commits to raising electricity access from 26% to 70% by 2030. New access is planned as 43% grid, 4% mini-grids and 53% standalone solar.

Electricity access



Now: **26%** (2023) Target: **70%** (2030)

Mission 300 energy compact

Commitment	Value
Planned split of new access	grid 43%, mini-grids 4%, standalone solar 53%
Clean cooking target	from 24% to 75% by 2030
Private investment sought	US$1.6228 billion
Rules for mini-grids when the grid arrives	Mentioned only
E-waste commitment	Yes

SECOND LIFE

Between 2026 and 2040, about 2,700 tonnes of solar equipment and stationary batteries are expected to retire in Malawi, most of it solar panels. That is 0.7% of the total for the 18 countries in our second-life atlas.

Solar and batteries retiring each year (tonnes)



EMISSIONS

In 2024, each megawatt-hour used in Malawi came with about 0.03 tonnes of CO2, including imports. The table also gives the combined margin used for carbon projects.

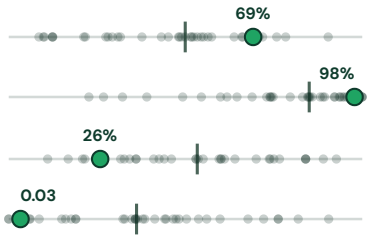
Grid emission factor, 2024 (tCO2/MWh)

Measure	tCO2/MWh
Generated in country	0.033
Electricity used, with imports	0.033
Combined margin (for carbon projects)	0.017

CLEAN ENERGY CERTIFICATES

I-REC status: not approved yet, so renewable plants here cannot issue I-RECs.

HOW IT COMPARES



Each dot is one country with a page on aloeenergy.org; the line marks the median. Positions only, no ranking.

Sources: Grid lines: OpenStreetMap contributors (ODbL), gap-fill from the World Bank Africa grid (2017); power plants: Global Energy Monitor (September 2026), WRI and public project sources; capacity and peak demand: national utilities and regulators; people and distance to the grid: WorldPop 2020 and gridfinder (CC BY 4.0); second life: Aloe second-life model (central case); emission factor: Aloe grid emission factors (Ember); compact: the national Mission 300 energy compact.

Aloe Energy

The full page, with the interactive atlas, is at aloeenergy.org/countries/malawi. The maps are free to view; the data behind them is available on request: brandon@aloeenergy.org. Aloe Energy is a not-for-profit initiative working at the grid edge in Sub-Saharan Africa.

Scan for the live page and map

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