Aloe Energy

COUNTRY REPORT · NOVEMBER 2026

Mali: grid and electricity access

West African Power Pool

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

56%
of them live within 15 km of a power line

2,382
km of high-voltage lines, 66 kV and above

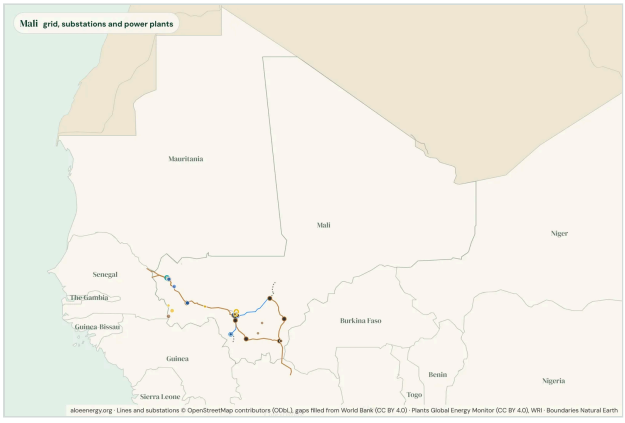
1,066
MW of operating power plants, 10 MW and above

16
power plants and transmission lines planned or under construction

About 17 million people in Mali live where satellites see no electric light at night, and 56% of them live within 15 km of a power line. This page brings together what our open atlases show for Mali: about 2,382 km of high-voltage lines, 1,066 MW of power plants and the projects still to come.

WHAT THIS MEANS

7.3 million people without power live 2 to 15 km from a line: close enough to plan for the grid, too far for a quick connection.



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

NEAR THE GRID, NOT ON IT

About 17 million people in Mali, roughly 71% of the population, live where satellites see no electric light at night. Of them, 56% live within 15 km of a mapped or predicted power line: 2.5 million within 2 km, 7.3 million 2 to 15 km away, and 7.6 million farther out. The largest group lives more than 15 km from any line, where standalone solar and mini-grids are the realistic first step for years to come.

- Within 2 km of a line: **2.5 million** (14%)
- 2 to 15 km: **7.3 million** (42%)
- More than 15 km: **7.6 million** (44%)

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

THE GRID TODAY

Mali's mapped high-voltage network runs to about 2,382 km of lines at 66 kV and above, with 14 substations. The highest voltage on the map is 220 kV, and 75% of the line length runs at 220 kV or more. About 159 km come from older World Bank (2017) maps, used where OpenStreetMap has gaps. Installed capacity was about 867 MW (GEM Sep 2026). The latest international tracking report puts access to electricity at 50% of people.

Mapped line length

Voltage	km
220 kV	1,659
132 kV	380
Voltage not recorded	185
Gap-fill from older public maps	159
Total	**2,382**

PLANTS AND PIPELINE

There are 15 operating power plants of 10 MW and above, adding up to about 1,066 MW, 43% of it oil. The largest is Manantali hydroelectric plant (200 MW, hydro). Another 12 plants totaling about 1,102 MW are under construction or planned, 300 MW of them under construction.

Operating capacity by type



Oil: **454 MW** (43%) Hydro: **450 MW** (42%)
Solar: **162 MW** (15%)

Promised and now expected dates

Project	Type	MW	First promised	Now expected
Guinea-Mali 225 kV interconnection (PIEGM)	Line	-	not set	2028
Bamako North 225 kV loop	Line	-	not set	2029
Mauritania-Mali 225 kV interconnection (PIEMM)	Line	-	2030	2030
Ghana-Burkina Faso-Mali 330 kV (Bolgatanga-Bobo-Dioulasso-Sikasso)	Line	-	2020	2031

EMISSIONS

In 2024, each megawatt-hour used in Mali came with about 0.61 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	0.614
Electricity used, with imports	0.614
Combined margin (for carbon projects)	0.465

SECOND LIFE

Between 2026 and 2040, about 5,300 tonnes of solar equipment and stationary batteries are expected to retire in Mali, most of it solar panels. That is 1.0% of the total for the 49 countries in our second-life atlas.

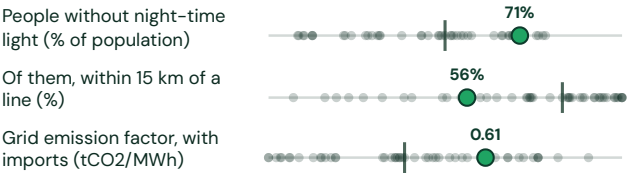
Solar and batteries retiring each year (tonnes)



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 access: regulators, utilities and Tracking SDG7 2026; 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).

Aloe Energy

The full page, with the interactive atlas, is at aloeenergy.org/countries/mali. 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 on energy access across Africa, with open grid maps and data from Southern and Eastern to West and Central Africa.

Cite as: Aloe Energy (2026). Mali country report, November 2026. aloeenergy.org/countries/mali. Free to share under CC BY 4.0.

Scan for the live page and map

FULL DATA

More about Mali

Everything else our research pages show for this country, from published sources. Each section names the page where the method and sources are.

PRICES AND RELIABILITY

LIT BUT OFF THE MAP

Where the lights are and the map is not

Satellites see 437 lit places in Mali at night. 99 are within 2 km of a mapped line, 51 are 2 to 10 km away and 287 are 10 km or more from any mapped line. Places lit far from the map point to lines the map is missing, mines and plants with their own power, or mini-grids.

The lit places off the map cover about 1,758 km² and are home to about 2,298,213 people.

Lit places by distance to a mapped line

Distance	Lit places	Newly lit
Within 2 km of a mapped line	99	
2 to 10 km away	51	46
10 km or more	287	248

See them on the map: the "Lit but off the map" layer of the grid-edge atlas (aloeenergy.org/research/grid-edge).

WATER AND CLIMATE RISK

Hydro and drought

Hydro is 42% of the operating power plants in Mali and made 15% of its electricity in 2024.

A dry year that takes a fifth of hydro output would cost about 30 MW on average over the year, and a severe drought (two fifths, as Zambia saw in 2024) about 60 MW.

The limit on the import lines is not published, so we cannot say how much of a shortfall imports could cover.

Hydro exposure

Measure	Value
Hydro in operating capacity	42%
Operating hydro (MW)	456
Hydro in 2024 generation	15%
Dry year, average MW lost	30
Severe drought, average MW lost	60

Method and all countries: hydro dependence and drought exposure (aloeenergy.org/research/hydro-exposure).

POWER PRICES

What power plants are paid

We found 1 signed or awarded electricity price for Mali, at US$119 per MWh in 2025 dollars. Each is what a buyer agreed to pay a power plant, with its source; some deals never reached operation.

Signed and awarded prices

Deal	Type	Year	Status	US$ per MWh (2025)
Phanes Energy Mali solar IPP - PPA with EDM-SA	Solar PV	2020	signed	119

All deals, market prices and a planning calculator: power prices (aloeenergy.org/research/power-prices).

CLIMATE AND CARBON

Carbon per new connection

The Mission 300 compact for Mali adds about 1.03 million new connections by 2030: 0.64 million to the grid, 0.15 million on mini-grids and 0.24 million with solar home systems.

Counted with what household surveys show people use for light now (kerosene is the main light in 5% of homes without power), they avoid about 20,492 t of CO2 a year and add about 141,732 t from the power they use, a net addition of 121,240 t a year.

New connections and CO2, central case

Measure	Value
New connections by 2030	1,026,760
CO2 avoided (t a year)	20,492
CO2 added (t a year)	141,732
Net CO2 avoided (t a year)	-121,240
Net per 1,000 connections (t a year)	-118.1

The default methodology view and every source: carbon per connection (aloeenergy.org/research/carbon-per-connection).

FROM POWER PLANT TO BATTERY SITE

When the thermal plants close

Mali has 2 coal, gas or oil plant sites of 50 MW or more, with 190 MW of grid connection. None of it frees up before 2030 in our central case.

Largest sites

Plant	Fuel	Connection (MW)	Frees up
Sirakoro power station	Oil	100	2058
Kayes power station	Oil	90	2053

Timings, cases and every site: power plant to battery site (aloeenergy.org/research/thermal-to-storage).

CIRCULAR AND MOBILITY

WASTE TO WEALTH

Power from waste

Mali's sugar mills, landfills, sewage works, factories and crop residues could make about 73 MW of power that is not built yet (central case), avoiding about 215,585 t of CO2e a year.

Power from waste by source (MW, central case)

Source	MW
Sugar mills and farms	9.0
Landfill gas and biogas	0.6
Industrial waste heat	2.3
City waste	0.2
Crop and sawmill residues	60.9

Largest sites

Site	What	MW
Sukala Dougabougou	Sugar mill boiler upgrade	4.5
Sukala Siribala	Sugar mill boiler upgrade	4.5
Diamond Cement Mali Bafoulabé Cement Plant	Cement kiln waste heat	2.3

Every site, costs and the method: power from waste (aloeenergy.org/research/waste-to-energy).

SECOND LIFE

Who could use a second-life panel

Places in Mali that could use a second-life solar panel add up to about 1,233 MWp (range 546 to 2,768): 1,096 MWp to cut generator use in towns, 89 MWp for mini-grids, 43 MWp for household systems and 6.1 MWp for 1,160 health facilities and 11 schools with no light at night.

Mapped by half-degree cell, with years to 2040: where the panels are needed (aloeenergy.org/research/second-life#where-demand).

E-MOBILITY

Electric transport, per km

On Mali's grid, an electric motorbike emits about 42 g of CO2 per km from the power it charges with, against 48 g for a petrol one (11% less).

CO2 per km from use (g)

Vehicle	Electric	Petrol or diesel	Difference
Motorbike	42	48	-11%
Bus	795	1,673	-52%
Small car (newer petrol car)	127	125	+2%

Life-cycle figures, a cost calculator and city air: e-mobility (aloeenergy.org/e-mobility#per-km).

Sources: Lit places: NASA Black Marble night lights, compared with our mapped lines (grid-edge atlas). Hydro and drought: our hydro exposure analysis (plants from our grid atlases; generation from Ember, corrected with regulator figures). Power prices: our power prices table (signed and awarded deals, with a source for each). Carbon per connection: compact targets, household lighting surveys (census, MICS, DHS, MTF) and our grid emission factors. Thermal plant sites: Global Energy Monitor, Global Integrated Power Tracker (September 2026), and our thermal-to-storage model. Power from waste: FAOSTAT, Global Energy Monitor and OpenStreetMap sites, in our waste-to-energy model. Second-life demand: grid-edge screening, compact targets, World Bank Enterprise Surveys and health and school facility lists, in our second-life atlas. Transport per km: our grid emission factors and vehicle energy use; running costs from national pump prices and tariffs.