Aloe Energy

COUNTRY BRIEF · NOVEMBER 2026

Rwanda: grid and electricity access

Eastern Africa Power Pool

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

100%
of them live within 15 km of a power line

1,296
km of high-voltage lines, 66 kV and above

429
MW of operating power plants, 10 MW and above

9
power plants and transmission lines planned or under construction

About 7.3 million people in Rwanda live where satellites see no electric light at night, and 100% of them live within 15 km of a power line. This page brings together what our open atlases show for Rwanda: about 1,296 km of high-voltage lines, 429 MW of power plants and the projects still to come.

WHAT THIS MEANS

4.7 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 EAPP grid atlas. Lines © OpenStreetMap contributors (ODbL).

NEAR THE GRID, NOT ON IT

About 7.3 million people in Rwanda, roughly 52% of the population, live where satellites see no electric light at night. Of them, 100% live within 15 km of a mapped or predicted power line: 2.6 million within 2 km, 4.7 million 2 to 15 km away, and 11,000 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. Solar home systems are common in Rwanda, and they barely show at night from space, so this proxy overstates how many people have no power at all. At its 2016-2023 pace, about 4.2 percentage points a year (World Bank), Rwanda would reach the 100% access target in its Mission 300 compact around 2032, not 2030; the target needs about 5.2 points a year.

- Within 2 km of a line: **2.6 million** (35%)
- 2 to 15 km: **4.7 million** (64%)
- More than 15 km: **11,000** (0%)

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

THE GRID TODAY

Rwanda's mapped high-voltage network runs to about 1,296 km of lines at 66 kV and above, with 28 substations. The highest voltage on the map is 220 kV, and 38% of the line length runs at 220 kV or more. Installed capacity was about 467 MW (Dec 2025), and peak demand about 234 MW (Q2 2024). The latest international tracking report puts access to electricity at 85% of people.

Mapped line length

Voltage	km
220 kV	492
110 kV	705
Voltage not recorded	86
Gap-fill from older public maps	14
Total	**1,296**

PLANTS AND PIPELINE

There are 13 operating power plants of 10 MW and above, adding up to about 429 MW, 56% of it hydro. The largest is Rusumo (80 MW, hydro). Another 6 plants totaling about 648 MW are under construction or planned, 44 MW of them under construction.

Operating capacity by type



Hydro: **242 MW** (56%) Gas: **138 MW** (32%)
Oil: **49 MW** (11%)

Promised and now expected dates

Project	Type	MW	First promised	Now expected
Rwanda–Burundi 220 kV (Kigoma–Butare–Ngozi–Gitega)	Line	–	2016	2027
Rwanda–DR Congo 220 kV (Goma–Gisenyi, Goma–Bukavu)	Line	–	2025	2027
Ruzizi III 220 kV evacuation	Line	–	construction from Dec 2025	2030

MISSION 300 COMPACT

Rwanda's Mission 300 energy compact commits to raising electricity access from 84% to 100% by 2030.

Electricity access



Now: **84%** (2025) Target: **100%** (2030)

Mission 300 energy compact

Commitment	Value
Clean cooking target	from 6% to 31% by 2030
Private investment sought	US$1 billion
Rules for mini-grids when the grid arrives	Mentioned only
E-waste commitment	No

SECOND LIFE

Between 2026 and 2040, about 2,700 tonnes of solar equipment and stationary batteries are expected to retire in Rwanda, most of it off-grid solar kits and mini-grids. That is 0.6% of the total for the 18 countries in our second-life atlas.

Solar and batteries retiring each year (tonnes)



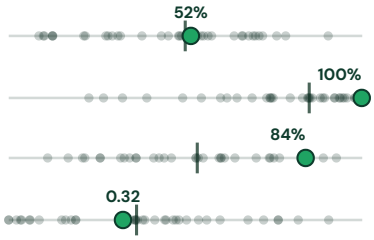
EMISSIONS

In 2024, each megawatt-hour used in Rwanda came with about 0.32 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	0.348
Electricity used, with imports	0.323
Combined margin (for carbon projects)	0.277

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); compact: the national Mission 300 energy compact.

Aloe Energy

The full page, with the interactive atlas, is at aloeenergy.org/countries/rwanda. 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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