Aloe Energy

COUNTRY BRIEF · NOVEMBER 2026

Uganda: grid and electricity access

Eastern Africa Power Pool

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

94%
of them live within 15 km of a power line

3,401
km of high-voltage lines, 66 kV and above

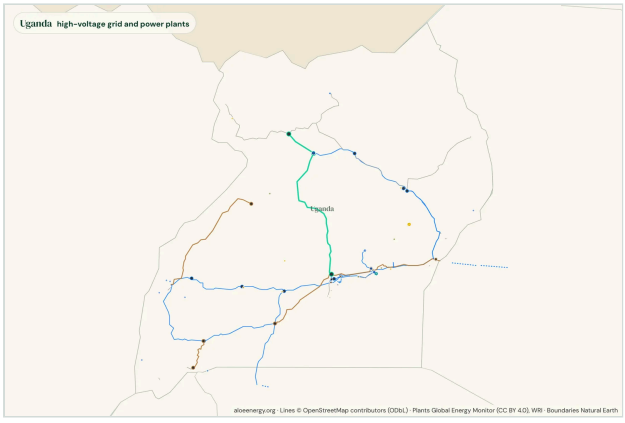
1,980
MW of operating power plants, 10 MW and above

33
power plants and transmission lines planned or under construction

About 34 million people in Uganda live where satellites see no electric light at night, and 94% of them live within 15 km of a power line. This page brings together what our open atlases show for Uganda: about 3,401 km of high-voltage lines, 1,980 MW of power plants and the projects still to come.

WHAT THIS MEANS

To reach 85% electricity access by 2030, Uganda needs to add about 5 percentage points a year from 2025: from 60% today.



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

NEAR THE GRID, NOT ON IT

About 34 million people in Uganda, roughly 68% of the population, live where satellites see no electric light at night. Of them, 94% live within 15 km of a mapped or predicted power line: 12 million within 2 km, 20 million 2 to 15 km away, and 1.9 million 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 3.1 percentage points a year (World Bank), Uganda would reach the 85% access target in its Mission 300 compact around 2034, not 2030; the target needs about 4.8 points a year.

- Within 2 km of a line: **12 million** (34%)
- 2 to 15 km: **20 million** (60%)
- More than 15 km: **1.9 million** (6%)

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

THE GRID TODAY

Uganda's mapped high-voltage network runs to about 3,401 km of lines at 66 kV and above, with 22 substations. The highest voltage on the map is 400 kV, and 28% of the line length runs at 220 kV or more. About 98 km come from older World Bank (2017) maps, used where OpenStreetMap has gaps. Installed capacity was about 2,048 MW (2024), and peak demand about 1,351 MW (2025). The latest international tracking report puts access to electricity at 55% of people.

Mapped line length

Voltage	km
400 kV	304
220 kV	619
132 kV	1,636
66 kV	30
Voltage not recorded	714
Gap-fill from older public maps	98
Total	**3,401**

PLANTS AND PIPELINE

There are 27 operating power plants of 10 MW and above, adding up to about 1,980 MW, 80% of it hydro. The largest is Karuma (600 MW, hydro). Another 27 plants totaling about 20,617 MW are under construction or planned, 24 MW of them under construction.

Operating capacity by type



Hydro: **1,592 MW** (80%) Oil: **189 MW** (10%)
Solar: **107 MW** (5%) Biomass: **92 MW** (5%)

Promised and now expected dates

Project	Type	MW	First promised	Now expected
Uganda-South Sudan 400 kV (Olwiyo-Nimule-Juba)	Line	-	2020	2028
Uganda Karuma-Kawanda 400 kV (Karuma evacuation)	Line	-	2018	2024
Kenya-Uganda Lessos-Tororo 400 kV (Kenyan section)	Line	-	2014	2027
Uganda Bujagali-Tororo 220 kV (Ugandan section)	Line	-	2020	2027

MISSION 300 COMPACT

Uganda's Mission 300 energy compact commits to raising electricity access from 60% to 85% by 2030.

Electricity access



Now: **60%** (2025) Target: **85%** (2030)

Mission 300 energy compact

Commitment	Value
Clean cooking target	from 25% to 50% by 2030
Private investment sought	US$9.44 billion
Rules for mini-grids when the grid arrives	Yes
E-waste commitment	No

SECOND LIFE

Between 2026 and 2040, about 7,500 tonnes of solar equipment and stationary batteries are expected to retire in Uganda, most of it off-grid solar kits and mini-grids. That is 1.8% of the total for the 18 countries in our second-life atlas.

Solar and batteries retiring each year (tonnes)



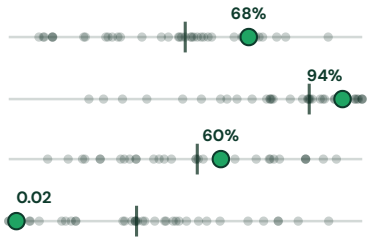
EMISSIONS

In 2024, each megawatt-hour used in Uganda came with about 0.02 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	0.022
Electricity used, with imports	0.022
Combined margin (for carbon projects)	0.011

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/uganda. 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.

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