Aloe Energy

REGIONAL REPORT · NOVEMBER 2026

West African Power Pool (WAPP)

Every country side by side, from public data

14	205 M	83%	33,424	12
countries in our data	people live without night-time light, a proxy for no power	of them live within 15 km of a power line	MW of operating power plants, 10 MW and above	countries with a Mission 300 compact in our data

The West African Power Pool (WAPP) side by side: power plants and lines, the generation mix, Mission 300 compacts, prices, carbon, access, drought risk, storage and waste for each country, with a pool total. About 449 million people live in the 14 countries in our data; our atlases map about 33,424 MW of operating plants and 50,977 MW more planned or under construction.

Created by ECOWAS in 1999, it brings together fourteen countries. A regional market and a regional regulator (ERERA) are in place.

GRID AND GENERATION

GRID AND GENERATION

Power plants, lines and the generation mix

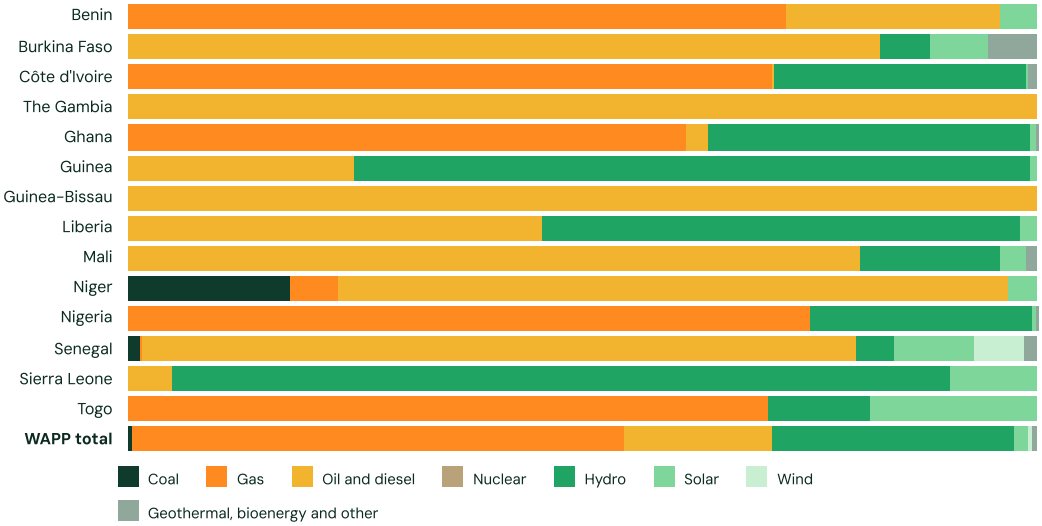
Across the 14 WAPP countries in our data, our atlases map about 33,424 MW of operating power plants of 10 MW and above (gas 55%, hydro 22%, oil and diesel 15%), about 5,799 MW under construction and about 45,178 MW more planned. Hydro is the largest source in 2 of the 14 countries.

The mapped high-voltage network runs to about 47,793 km of lines.

Power plants and lines by country

Country	Operating (MW)	Largest source	Under construction (MW)	Planned (MW)	Lines (km)	Top voltage	Substations
Benin	193	Gas (66%)	50	277	1,541	330 kV	15
Burkina Faso	572	Oil and diesel (57%)	0	595	1,792	220 kV	13
Côte d'Ivoire	2,787	Gas (53%)	268	1,658	11,568	400 kV	55
The Gambia	173	Oil and diesel (87%)	0	725	148	220 kV	2
Ghana	6,883	Gas (62%)	300	7,351	6,315	330 kV	60
Guinea	1,342	Hydro (65%)	300	3,033	1,358	220 kV	16
Guinea-Bissau	10	Solar (100%)	0	63	219	220 kV	4
Liberia	146	Hydro (60%)	20	669	580	220 kV	8
Mali	1,066	Oil and diesel (43%)	300	802	2,382	220 kV	14
Niger	389	Oil and diesel (83%)	0	1,330	2,143	132 kV	15
Nigeria	16,951	Gas (68%)	3,898	26,010	14,793	330 kV	125
Senegal	2,059	Oil and diesel (34%)	591	787	3,342	220 kV	33
Sierra Leone	400	Gas (40%)	47	919	719	220 kV	8
Togo	452	Gas (37%)	25	959	892	330 kV	12
WAPP total	**33,424**	**Gas (55%)**	**5,799**	**45,178**	**47,793**		**380**

Generation mix by country



Electricity generation by source, 2024

Country	Generation (TWh)	Coal	Gas	Oil and diesel	Nuclear	Hydro	Solar	Wind	Geothermal, bioenergy and other
Benin	1.0	-	72%	24%	-	-	4%	-	-
Burkina Faso	1.7	-	-	83%	-	5%	7%	-	5%
Côte d'Ivoire	10.8	-	71%	-	-	28%	-	-	1%
The Gambia	0.5	-	-	100%	-	-	-	-	-
Ghana	24.3	-	61%	2%	-	35%	1%	-	-
Guinea	4.0	-	-	25%	-	74%	1%	-	-
Guinea-Bissau	0.1	-	-	100%	-	-	-	-	-
Liberia	0.6	-	-	46%	-	53%	2%	-	-
Mali	6.0	-	-	81%	-	15%	3%	-	1%
Niger	0.9	18%	5%	74%	-	-	3%	-	-
Nigeria	37.6	-	75%	-	-	24%	-	-	-
Senegal	7.6	1%	-	79%	-	4%	9%	5%	1%
Sierra Leone	0.2	-	-	5%	-	86%	10%	-	-
Togo	0.7	-	70%	-	-	11%	18%	-	-
WAPP total	**96.0**	**-**	**54%**	**16%**	**-**	**27%**	**2%**	**-**	**-**

Capacity and peak demand, latest published

Country	Capacity (MW)	Peak demand (MW)	As of
Benin	152	-	Sep 2026 (GEM)
Burkina Faso	415	-	Sep 2026 (GEM)
Côte d'Ivoire	2,907	-	2023
The Gambia	144	-	Sep 2026 (GEM)
Ghana	5,641	-	2025
Guinea	1,310	-	2025
Guinea-Bissau	10	-	Sep 2026 (GEM)
Liberia	126	-	Sep 2026 (GEM)
Mali	867	-	Sep 2026 (GEM)
Niger	267	-	Sep 2026 (GEM)
Nigeria	13,000	5,801	Mar 2025
Senegal	1,406	-	Sep 2026 (GEM)
Sierra Leone	319	-	Sep 2026 (GEM)
Togo	301	-	Sep 2026 (GEM)

Cross-border line projects we track: 6 completed, 4 under construction, 2 in preparation

Countries	Voltage	Status	Year
Nigeria-Benin	330 kV	Completed	2007
Côte d'Ivoire-Mali	225 kV	Completed	2012

Countries	Voltage	Status	Year
Ghana–Burkina Faso	225 kV	Completed	2018
Côte d'Ivoire–Liberia–Sierra Leone–Guinea	225 kV	Completed	2021
Guinea–Guinea-Bissau–The Gambia–Senegal	225 kV	Completed	2023
Mali–Senegal	225 kV	Completed	2024
Niger–Benin	330 kV	Under construction	2027 (expected)
Nigeria–Niger–Benin–Burkina Faso	330 kV	Under construction	2027 (expected)
Guinea–Mali	225 kV	Under construction	2028 (expected)
Mauritania–Mali	225 kV	Under construction	2030 (expected)
Ghana–Côte d'Ivoire	330 kV	In preparation	2029 (expected)
Ghana–Burkina Faso–Mali	330 kV	In preparation	2031 (expected)

Capacity is what the country or WAPP reports (available capacity in the SAPP monthly report, installed capacity elsewhere); it is not the same as our mapped plants. GEM marks the plant total from Global Energy Monitor where no national figure is published. The project table lists lines in our project tracker; older interconnectors are on the atlas and the interconnector limits (aloeenergy.org/research/interconnector-limits) page. Every plant and line: the WAPP grid atlas (aloeenergy.org/research/wapp-grid).

MISSION 300 COMPACTS

MISSION 300 COMPACTS COMPARED

What the compacts say, side by side

12 of the 14 WAPP countries in our data have published a Mission 300 national energy compact. Together they seek about US$39.0 billion of private investment by 2030. 1 set out how to handle e-waste from solar kits and batteries, and 9 say what happens to mini-grids when the main grid arrives.

No compact in our data: Guinea-Bissau, Mali.

Set the split beside the access section below, which shows where the people without power live by distance to a mapped line: a compact that relies on the grid fits a country where most of them live within 2 km.

Access targets and how they are split

Country	Access now	Target	Grid	Mini-grid	Standalone	What the split measures
Benin	42.6% in 2024	70% by 2030	84%	10%	7%	Share of new connections
Burkina Faso	34.2% in 2024	90% by 2030	70%	25%	5%	Share of people with access
Côte d'Ivoire	64% in 2023	100% by 2030	66%	19%	15%	Share of new connections
The Gambia	73.7% in 2024	100% by 2030	–	–	–	Not stated
Ghana	89% in 2024	99% by 2030	73%	27%	–	Share of new connections
Guinea	53% in 2024	100% by 2030	71%	10%	19%	Share of new connections
Liberia	32.7% in None	75% by 2030	60%	15%	25%	Share of new connections
Niger	20.8% in 2022	60% by 2030	72%	4%	24%	Share of new connections
Nigeria	61% in 2022	100% by 2030	–	–	–	Not stated
Senegal	84% in 2023	100% by 2029	58%	24%	18%	Share of new connections
Sierra Leone	36% in 2025	78% by 2030	22%	22%	56%	Share of new connections
Togo	70% in 2024	100% by 2030	82%	1%	17%	Share of new connections

What each compact commits to

Country	Productive use	E-waste	Least-cost or GIS plan	Mini-grid rules when the grid arrives	Cost-reflective tariff	Private investment sought (US$ billion)
Benin	Mentioned	Yes	Exists	Yes	Mentioned	Not stated
Burkina Faso	Yes	No	Exists	Mentioned	Committed	5.7
Côte d'Ivoire	Mentioned	No	Exists	Yes	Committed	1.9
The Gambia	Mentioned	No	Exists	Yes	Committed	0.2
Ghana	Yes	No	Exists	Yes	Committed	2.0
Guinea	Mentioned	No	Exists	Yes	Committed	7.6
Liberia	No	No	Exists	Mentioned	Committed	0.1
Niger	Yes	No	Exists	Mentioned	Committed	0.5

Country	Productive use	E-waste	Least-cost or GIS plan	Mini-grid rules when the grid arrives	Cost-reflective tariff	Private investment sought (US$ billion)
Nigeria	Mentioned	No	Exists	Yes	Committed	16
Senegal	Yes	No	Planned	Yes	Committed	2.3
Sierra Leone	Mentioned	No	Exists	Yes	Committed	1.4
Togo	Yes	No	Exists	Yes	Committed	1.7

Read from each compact document, with page numbers and quotes for every value: Mission 300 compacts compared (aloeenergy.org/research/m300-compacts). "Not stated" means the compact does not say.

PRICES AND CARBON

PRICES

What power costs across the pool

Household tariffs are the energy charge at the central bank exchange rate; check on the tariffs page what each includes. Our power price data holds 9 deals in WAPP countries, from auctions, signed power purchase agreements and published bids.

Household tariffs and load shedding

Country	Utility	Household (US$/kWh)	Lifeline or first block (US$/kWh)	Load shedding
Benin	SBEE	0.213	0.146	Cuts reported
Burkina Faso	SONABEL	0.164	0.128	Not confirmed this month
Côte d'Ivoire	CIE	0.126	0.054	Not confirmed this month
The Gambia	NAWEC	0.192	-	Not confirmed this month
Ghana	ECG	0.175	0.077	Not confirmed this month
Guinea	EDG	0.044	0.012	Cuts reported
Guinea-Bissau	EAGB	0.218	0.138	None reported
Liberia	Liberia Electricity Corporation (LEC)	0.220	0.130	Cuts reported
Mali	-	-	-	Cuts reported
Niger	NIGELEC	0.116	0.101	Not confirmed this month
Nigeria	Ikeja Electric	0.046	0.003	Not confirmed this month
Senegal	Senelec	0.233	0.140	Cuts reported
Sierra Leone	-	-	-	Not confirmed this month
Togo	CEET	0.158	0.102	Not confirmed this month

Power deals signed or bid in the pool, US$/MWh as signed

Source	Deals	Median	Lowest	Highest
Solar PV	5	83	37	115
Gas	2	95	90	100
Diesel and fuel oil	1	164	-	-
Renewables (mixed)	1	65	-	-

Every tariff and status with its source: utilities, tariffs and load shedding (aloeenergy.org/research/utilities-and-tariffs). Every deal with its source: power prices and deals (aloeenergy.org/research/power-prices). Load shedding is grouped from the status we last read for each country.

CARBON

Grid carbon and carbon markets

4 of the 14 WAPP countries in our data issue I-REC renewable energy certificates, about 1.7 TWh to date. The grid factor is the average CO2 per MWh of electricity used; a low factor means grid power, electric transport and new grid connections add little CO2.

Grid carbon, certificates and carbon markets

Country	Grid factor (tCO2/MWh)	Year	I-REC certificates	Issued to date (GWh)	Article 6 deals and activities	Net CO2 avoided by new connections (t a year)
Benin	0.452	2024	Not approved	-	1	-113,771
Burkina Faso	0.512	2024	Issuing	450	0	-449,962
Côte d'Ivoire	0.359	2024	Issuing	94	0	-291,814
The Gambia	0.762	2024	Not approved	-	1	-12,251

Country	Grid factor (tCO2/MWh)	Year	I-REC certificates	Issued to date (GWh)	Article 6 deals and activities	Net CO2 avoided by new connections (t a year)
Ghana	0.328	2024	Issuing	35	49	-67,919
Guinea	0.189	2024	Not approved	-	0	-35,617
Guinea-Bissau	0.762	2024	Not approved	-	0	-17,661
Liberia	0.348	2024	Not approved	-	0	-29,076
Mali	0.614	2024	Not approved	-	0	-121,240
Niger	0.548	2024	Not approved	-	0	-530,042
Nigeria	0.379	2024	Issuing	1,142	0	-1,263,614
Senegal	0.599	2024	Not approved	-	8	-86,573
Sierra Leone	0.036	2024	Approved, none issued	-	1	517
Togo	0.371	2024	Not approved	-	0	-66,704

Methods: grid emission factors (aloeenergy.org/research/grid-emission-factors), clean energy certificates (aloeenergy.org/research/clean-energy-certificates) and carbon per connection (aloeenergy.org/research/carbon-per-connection) (central case, new connections to 2030 under each compact or national target). A negative value means the new connections add CO2 on net, because the grid power they use emits more than the kerosene and diesel they replace.

ACCESS, RISK, STORAGE AND WASTE

ACCESS

Who lives near the grid but not on it

About 205 million people in the WAPP countries in our data live where satellites see no electric light at night, out of about 449 million. 83% of them live within 15 km of a mapped power line, and 34% within 2 km, close enough for a grid connection to be the obvious first step.

Satellites also see 8,405 lit places 2 km or more from any mapped line: missing lines, mines and plants with their own power, or mini-grids.

People without power and how far they live from the grid

Country	People (million)	Without night light (million)	Within 2 km of a line	2 to 15 km	Beyond 15 km	Median distance (km)	Lit places off the map
Benin	14	5.4	35%	60%	4%	3.2	87
Burkina Faso	24	13	26%	59%	15%	5.4	221
Côte d'Ivoire	32	6.8	13%	79%	8%	5.9	2,655
The Gambia	2.8	0.9	16%	39%	45%	12.5	77
Ghana	34	2.9	30%	69%	1%	2.9	2,322
Guinea	15	9.4	32%	48%	20%	4.7	147
Guinea-Bissau	2.2	1.5	7%	12%	81%	60.3	9
Liberia	5.6	3.0	30%	45%	25%	5.6	41
Mali	24	17	14%	42%	44%	12.0	338
Niger	27	18	10%	39%	51%	15.3	227
Nigeria	233	114	44%	50%	6%	2.7	1,152
Senegal	19	5.2	15%	46%	38%	8.2	800
Sierra Leone	8.6	5.0	25%	44%	31%	7.8	44
Togo	8.4	2.5	43%	57%	0%	2.5	285
WAPP total	**449**	**205**	**34%**	**50%**	**17%**		**8,405**

Night-time light is a proxy for no power, not a household survey. Map and method: the grid-edge atlas (aloeenergy.org/research/grid-edge).

RISK, STORAGE AND WASTE

Drought, battery sites, waste and second life

A dry year that takes a fifth of hydro output would cost the WAPP countries about 575 MW on average over the year, and a severe drought (two fifths) about 1,148 MW. 60 coal, gas and oil plant sites with about 18,318 MW of grid connection could host batteries as they close. Waste could fuel about 1,342 MW of power, and about 84,527 t of solar panels, kits and batteries will reach end of life from 2026 to 2040.

Drought risk, storage sites, waste and second life

Country	Hydro in operating plants	Dry year, MW lost	Severe drought, MW lost	Thermal plant sites for batteries (MW)	Power from waste (MW)	Solar and battery waste 2026–2040 (t)	Second-life panel demand (MWp)
Benin	–	–	–	127	49	5,394	1,267
Burkina Faso	5%	2	5	145	32	5,211	795
Côte d'Ivoire	36%	70	139	1,669	161	5,649	1,812
The Gambia	–	–	–	–	4	436	238
Ghana	24%	190	379	3,979	123	7,161	3,856
Guinea	65%	65	130	235	94	2,199	747
Guinea-Bissau	–	–	–	–	9	864	108
Liberia	62%	5	9	–	12	1,546	455
Mali	42%	30	60	190	73	5,309	1,233
Niger	–	–	–	189	20	1,392	1,547
Nigeria	17%	200	400	10,618	618	35,501	20,807
Senegal	–	7	14	839	101	7,717	1,995
Sierra Leone	12%	4	8	162	28	1,567	575
Togo	15%	2	4	165	17	4,581	735
WAPP total		**575**	**1,148**	**18,318**	**1,342**	**84,527**	**36,171**

Methods: hydro and drought (aloeenergy.org/research/hydro-exposure), power plant to battery site (aloeenergy.org/research/thermal-to-storage), power from waste (aloeenergy.org/research/waste-to-energy) and the second-life atlas (aloeenergy.org/research/second-life). Central cases throughout.

SOURCES AND METHOD

- Plants and lines: our grid atlases (Global Energy Monitor, WRI, OpenStreetMap, World Bank and national sources). Generation mix: Ember. Capacity and peak demand: SAPP monthly report and national regulators and utilities.
- Compacts: the published Mission 300 national energy compacts and World Bank compact progress reports. Distances: our grid-edge atlas.
- Tariffs and load shedding: utility tariff books, regulators and news reports (Utilities and Tariffs data). Deals: auction results, regulators, utilities and trade press (power prices data).
- Grid factors: Ember and national data, in our grid emission factors. Certificates: the I-REC registry (Evident). Article 6: UNEP-CCC Article 6 pipeline.
- Access: WorldPop population, NASA Black Marble night lights, Google Open Buildings and our mapped lines (grid-edge atlas).
- Hydro: our grid atlases and Ember. Thermal sites: Global Energy Monitor (September 2026). Waste: FAOSTAT, Global Energy Monitor and OpenStreetMap. Second life: IRENA, compact targets and our second-life atlas.

Rows run in alphabetical order. These are side-by-side facts, not scores or rankings. A dash means we hold no data for that country. Pool totals count member countries only.

Aloe Energy

Country detail, maps and the data behind every table: aloeenergy.org/regions/wapp. Aloe Energy is a nonprofit that publishes open energy maps and data for Africa. Free to share under CC BY 4.0.