

POLICY BRIEF

Western Africa Compact Commitments



ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AfDB	African Development Bank
AFD / FDA	Agence Française de Développement
ARREC / ERERA	Autorité de Régulation Régionale du secteur de l'Électricité de la CEDEAO (ECOWAS Regional Electricity Regulatory Authority)
ATC&C	Aggregate Technical, Commercial and Collection (losses)
ATIDI	African Trade & Investment Development Insurance
BESS	Battery Energy Storage System
CAPEX	Capital Expenditures
CEET	Compagnie Énergie Électrique du Togo
CI-ENERGIES	Côte d'Ivoire Énergies
CIE	Compagnie Ivoirienne d'Électricité
CLSG	Côte d'Ivoire-Liberia-Sierra Leone-Guinea (interconnection)
DARES	Distributed Access through Renewable Energy Scale-up (Nigeria)
DisCos	Distribution Companies (Nigeria)
DRE	Distributed Renewable Energy
ECG	Electricity Company of Ghana
ECOWAS	Economic Community of West African States
EDG	Électricité de Guinée
EDSA	Electricity Distribution and Supply Authority (Sierra Leone)
EGTC	Electricity Generation and Transmission Company (Sierra Leone)
EIB	European Investment Bank
END	Énergie Non Distribuée (unserved/undistributed energy)
FY	Financial Year
GDP	Gross Domestic Product
GenCos	Generation Companies (Nigeria)
GWh	Gigawatt-hour
GRIDCo	Ghana Grid Company
HFO	Heavy Fuel Oil
ICS	Improved Cookstoves
IDA	International Development Association
IDB	Islamic Development Bank
IPP	Independent Power Producer
IPSMP	Integrated Power System (Sector) Master Plan (Ghana)
IRP	Integrated Resource Plan
KfW	Kreditanstalt für Wiederaufbau (German development bank)
kV	Kilovolt
LCPDP	Least-Cost Power Development Plan
LEC	Liberia Electricity Corporation

Acronym	Definition
LPG	Liquefied Petroleum Gas
MIGA	Multilateral Investment Guarantee Agency
MW	Megawatt
NAWEC	National Water and Electricity Company (The Gambia)
NBET	Nigerian Bulk Electricity Trading Company
NEDCo	Northern Electricity Distribution Company (Ghana)
NEP	Nigeria Electrification Programme
NIGELEC	Société Nigérienne d'Électricité
O&M	Operations and Maintenance
OM&M	Operations, Maintenance, and Monitoring
OMVG	Organisation pour la Mise en Valeur du fleuve Gambie
OMVS	Organisation pour la Mise en Valeur du fleuve Sénégal
OPGW	Optical Ground Wire
PDAE	Programme de Développement de l'Accès à l'Énergie (Niger)
PIEMM	Projet d'Interconnexion Électrique Mauritanie-Mali
PIMC	Plan Intégré à Moindre Coût (Senegal)
PPA	Power Purchase Agreement
PPP	Public-Private Partnership
PSP	Private Sector Participation
PUC	Public Utilities Regulatory Commission (Ghana)
PV	Photovoltaic
RBF	Results-Based Financing
RESCOs	Renewable Energy Service Companies
RREA	Rural and Renewable Energy Agency (Liberia)
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SBEE	Société Béninoise d'Énergie Électrique
SBPE	Société Béninoise de Production d'Électricité
SCADA	Supervisory Control and Data Acquisition
SENELEC	Société Nationale d'Électricité du Sénégal
SHS	Solar Home System
SNAE	Stratégie Nationale d'Accès à l'Énergie (Niger)
SOMELEC	Société Mauritanienne d'Électricité
SONABEL	Société Nationale d'Électricité du Burkina Faso
TCN	Transmission Company of Nigeria
TSA	Transmission Service Agreements
USD	United States Dollar
WADB	West African Development Bank

Acronym	Definition
WA-REMP	West Africa Regional Electricity Market Program
WAPP	West African Power Pool
WB	World Bank
XOF	West African CFA franc

INTRODUCTION

In January 2025, at the Mission 300 Africa Energy Summit in Dar es Salaam (Tanzania), leaders from across Africa shared official roadmaps aimed at achieving universal energy access. This event, backed by global financial institutions such as the African Development Bank (AfDB) and the World Bank (WB), marked a coordinated push toward lasting infrastructure change. National strategies, referred to as Energy Compacts, have been formally submitted by 29 governments, setting out the specific commitments that each country intends to follow to expand affordable energy, strengthen power systems, and scale renewables.

The Mission 300 initiative encourages nations to set the necessary reforms and measurable targets in five key target areas, which form the structural pillars of this brief:

- 1) Expanding cost-efficient power generation;
- 2) Boosting regional power integration for cross-border trade;
- 3) Scaling up last-mile electrification with distributed renewable energy solutions;
- 4) Unlocking private investment through supportive regulatory frameworks; and
- 5) Strengthening utilities with transparent financial management and cost recovery.

The Mission 300 initiative stands as the largest organized attempt so far to respond to Africa's power shortages. In West Africa, the stakes of the Mission 300 agenda are especially high as the region grows fast in terms of population, urban density, and in the number of households and businesses that still go without reliable electricity. At the same time, the region has significant renewable energy potential, especially solar, alongside important hydropower resources in selected countries, while opportunities for regional power trade also play a role. This creates a strong case for coordinated investment that expands access, increases clean generation, and strengthens the systems needed to deliver affordable and reliable electricity at scale. The AfDB, as a co-host of Mission 300, has a portfolio of ongoing operations across the region that directly supports these priorities.

Figure 1: Energy Summit



This strategic brief provides a comparative analysis of the Energy Compacts presented by twelve key nations in West Africa: **Benin, Côte d'Ivoire, The Gambia, Ghana, Guinea, Liberia, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo**. The analysis focuses on providing recommendations for ongoing investment roadmaps, based on a systematic review of the official National Compact documents (2024-2025).

KEY FINDINGS

The comparative review of the twelve West African Energy Compacts shows a shared necessity to expand access, reduce supply costs and strengthen the reliability of power systems. Although the countries start from very different positions, ranging from large and relatively mature systems such as Nigeria, Ghana, Côte d'Ivoire and Senegal, to smaller or more fragile systems such as Liberia, The Gambia, Niger and Sierra Leone, the compacts point toward a common regional agenda: scaling renewable generation, reinforcing grids, expanding last-mile access, strengthening utilities, and making regional power trade more effective. This entails acknowledgements and advancements in the following areas:

- Universal access ambition. All twelve countries have set ambitious electricity access targets for 2030, with most aiming for universal or near-universal coverage. For countries like Niger, Liberia, and Sierra Leone, reaching these targets would require more than doubling current electrification rates within five years.
- Shift to renewables. Across the region, solar, hydropower, wind and distributed renewables are expected to provide a growing share of new capacity. Targets for 2030 range from 10% to 75% in Liberia and 70% in Guinea and Mauritania, representing a significant break from the thermal and import-dependent systems that dominate the region today.
- Clean cooking is part of the access agenda. Most compacts include quantified clean cooking targets, marking an important shift in how energy access is framed. However, it still requires stronger financing, standards, testing and certification systems, fuel distribution networks, consumer finance and coordination with health, environment and gender policies.
- Private investment is essential. The compacts rely heavily on private capital for generation, off-grid electrification and clean cooking, whereas the private financing targets differ sharply across countries. In this sense, larger markets like Ghana, Côte d'Ivoire, Senegal and Nigeria have more experience with Independent Power Producers (IPPs) and private participation, but still face payment, dispatch and off-taker risks. On the other hand, smaller or more fragile systems such as Liberia, Sierra Leone, The Gambia, Niger and Guinea will require stronger project preparation, guarantees, concessional finance and regulatory support before private capital can scale.
- Regional integration is advancing. West Africa's interconnection infrastructure is expanding, and several compacts treat cross-border trade as a core part of least-cost supply planning. The planned West African Power Pool (WAPP) day-ahead spot market represents an important step toward a functioning regional electricity market. However, harmonized transmission tariffs, clear wheeling rules and reliable payment mechanisms are still works in progress, and without them the full value of shared infrastructure will remain unrealized.
- Utility reforms. Across the region, utilities remain under pressure from high losses, weak collections, arrears, below-cost tariffs and fragile balance sheets, affecting the bankability of Power Purchase Agreements (PPAs), the viability of mini-grid and off-grid markets, and

the application of regional power trade. Strengthening utilities through cost recovery, transparent financial management, loss reduction, metering, audited accounts and payment discipline is a precondition for delivering the broader Mission 300 agenda in West Africa.

PILLAR 1: EXPANDING COST-EFFICIENT POWER GENERATION

Across the twelve West African energy compacts, this Pillar seeks to answer about changing how power systems are planned and procured. The emphasis is moving away from emergency and high-cost capacity additions toward a least-cost planning that considers generation, grid evacuation, storage, regional trade, conservation, and utility finances. In this sense, what matters most is whether electricity can actually reach consumers reliably and at an affordable cost.

At the same time, long-term affordability requires a more diversified generation mix. While the countries analyzed have very different baselines and energy profiles, their 2030 targets point toward a larger role for renewable energy, supported by stronger transmission and distribution infrastructure, storage, competitive procurement and regional power trade.

Cost-efficient power generation also depends on the performance of the existing power system. In this sense, high technical and commercial losses, overloaded networks, ageing equipment, weak dispatch capacity and recurrent outages that all raise the effective cost. Therefore, reducing losses and improving grid reliability are immediate cost-efficiency levers, especially in countries where losses remain above sustainable levels.

Analysis of National Strategies

Table 1 below provides a comparison of energy mix and grid performance indicators, while Table 2 summarizes the current installed capacity and 2030 generation targets for the twelve countries.

Table 1. Energy mix and power grid performance

Country	Current energy mix	Details / Main capacities	Grid reliability / Technical issues	Grid losses	Other key information
Benin	Available generation capacity is mainly thermal (69%), followed by hydro (16%) and solar PV (15%)	Installed generation capacity in 2024 was 239.8 MW, of which 199.8 MW was available	The grid faces ageing lines, overloaded transformers, obsolete distribution equipment, voltage drops, recurrent outages, and pressure from rapid and unplanned urbanization	Technical and non-technical losses were estimated at about 24.62% in 2024 (targeting to 15% by 2030)	National electricity access reached 42.6% in 2024, with major urban-rural disparity: 71.2% urban versus 13.1% rural. Benin remains highly dependent on electricity imports and regional gas supply

Country	Current energy mix	Details / Main capacities	Grid reliability / Technical issues	Grid losses	Other key information
Côte d'Ivoire	Installed capacity: 69% thermal, 30% hydro and 1% solar (2023)	2,907 MW of Installed capacity (2023)	Improving but remains a constraint. In 2023, operational indicators included END of 38.83 GWh, SAIFI of 22.0 interruptions and SAIDI of 19.5 hours	The global system yield was 84.99% in 2023, implying estimated total technical and commercial losses of about 15.01%	Household connection rate rose to 64% in 2023, while the national access rate reached 97.2%. Côte d'Ivoire is a regional power exporter within WAPP, exporting 1,052 GWh in 2023, and aims to become a regional energy hub
The Gambia	As of Q1 2025: imports 57% (Thermal from Senegal (32%), Hydro from Guinee (25%)), domestic public thermal 7%, domestic private IPP 29% (expired in May 2025), and solar 6%. 2024 annual generation mix: 87% thermal / 13% renewable energy including imports	90-99 MW Installed / 40 MW Available	Reliability is constrained by ageing generation assets, high dependence on imports/HFO, rural network overloads, and need for transmission reinforcement	21% (including technical and non-technical)	Electricity access is 73.7% nationally
Ghana	Around 62% thermal, 36% hydro, 2% solar (2024)	Installed generation capacity around 5,641 MW (2024), with significant excess capacity due to lagging peak demand and take-or-pay PPAs	Shift focus toward improving the reliability and stability of electricity delivery through the upgrade of over-aged transmission infrastructure such as the western corridor and middle corridor transmission lines	Aging contributes to transmission losses of about 4-5%. In terms of distribution, Aggregate Technical, Commercial, and Collection (ATC&C) losses are about 25%	Electricity access is high at about 89%, but uneven
Guinea	61% hydro and 39% thermal	Installed capacity was 1,310 MW (2024)	The grid faces overloaded substations and transmission lines due to rapid demand growth, high outage indicators, and dependence on hydropower/rainfall	Technical and commercial losses are estimated at 30% in 2024	Current electricity access in Guinea is 53% of the population as of 2024

Country	Current energy mix	Details / Main capacities	Grid reliability / Technical issues	Grid losses	Other key information
Liberia	Installed capacity mix: 70% hydro and 30% thermal. - Annual production mix: 67% hydro / renewable and 33% thermal	126 MW installed capacity, with a peak demand of 108 MW	During drought season, capacity drops by more than 75 percent, causing shortages, forcing LEC to rely on costly HFO generation and increased imports from Cote D'Ivoire via the CLSG network	Aggregate technical, commercial and collection losses: 45.4%. Commercial losses 27.5% by Oct. 2024	About 32.7% of the population has access to electricity
Mauritania	In 2023, production was 55.64% thermal, 27.34% hydropower, 12.63% wind, and 4.39% solar	Installed capacity in 2023 was 615.1 MW, with 520.1 MW available and total annual generation of around 1,660,000 MWh	The power system is fragmented, with many isolated networks and limited interconnection, and marked by the obsolescence of the distribution facilities. In 2023, around 250 localities had electricity networks out of roughly 2,600 potential sites	The compact cites ATCC losses of around 18%, while the sector diagnosis estimates a broader combined loss burden of around 30% under suboptimal performance conditions	Access to electricity is about 55% nationally, with a large urban-rural gap: around 91% urban and 6% rural
Niger	In 2022, imports accounted for about 71% of supply, local diesel generation about 23%, and solar PV was under 1%. In 2023, local production was 97% thermal and 3% renewable	Installed capacity is reported at 352 MW, with around 210 MW available	The power system is small and fragmented into four separate electrical zones, plus numerous isolated diesel mini-grids, with weak integration among them and with need for network reinforcement to absorb intermittent renewables	Transmission losses: 10.27% in 2023. Distribution losses: 11% in 2023	Electricity access remains low, around 20.84% in 2022. Niger targets 60% electricity access by 2030
Nigeria	75.5% gas, 24.3% hydro, 0.3% solar PV	12 GW installed grid-connected capacity; only around 46% available / about 40% utilized. Annual electricity production was 36,710 GWh in 2023	Supply is unreliable, with frequent outages and high dependence on fossil-fuel generators. Transmission capacity is constrained by aging and poorly maintained infrastructure, limiting evacuation of available generation. Distribution investment has been limited since privatization	Distribution Companies (DisCos) reporting an average of 47% losses	Electricity access was 61% in 2022, with over 86 million people without access

Country	Current energy mix	Details / Main capacities	Grid reliability / Technical issues	Grid losses	Other key information
Senegal	Installed: 70.95% thermal and 29.05% renewable (vs. actual 82.79% thermal and 17.21% renewable)	1,903.81 MW (installed/available)	Project execution delays, weak coordination, lack of planning and use of non-competitive procedures have led to emergency projects and additional costs	Approx. 18.3% implied losses / non-recovered energy in 2023, based on SENELEC's reported overall yield of 81.7%	Senegal has relatively high electricity access, estimated at 84% in 2023: 97.1% urban vs 64.5% rural
Sierra Leone	Renewables account for 46% of the energy mix, mainly hydropower; remaining supply relies heavily on liquid fuels/HFO and regional imports. Baseline generation mix includes approx. 19% solar, 5% biomass and 22% hydro	271 MW installed; just over 140 MW available	Reliable power supply is affected by an aged and limited transmission and distribution network	EDSA (utility) losses (commercial and technical) of 53.2%	National electricity access is 36%: approx.
Togo	26% solar, 12% hydro, 62% thermal	Installed capacity on the interconnected grid: 267.5 MW (2024)	System under pressure during evening peak hours. Key issues include the need for dispatchable capacity, gas supply security, BESS integration, network reinforcement, and long low-voltage lines causing technical losses	Global transmission and distribution losses are around 16% / distribution losses 16.04%. Target is to reduce to 12% by 2030	Target: Access to electricity by 2030: 100% (vs 70% in 2023), by reaching around 1,154-1,187 MW installed capacity, including major solar expansion, 57 MW hydro, 250 MW gas, and BESS storage

Source: National Energy Compact (Mission 300).

Table 2. 2030 targets and current situation

Country	Current capacity (MW)	2030 target (MW)	Current renewables share	Renewables share target 2030	Target dominant source
Benin	239.8 MW installed; 199.8 MW available	794 MW installed capacity	31% of available installed capacity; 16% of electricity production (2024)	53% of installed capacity; 30% of electricity production	Solar / Thermal

Country	Current capacity (MW)	2030 target (MW)	Current renewables share	Renewables share target 2030	Target dominant source
Côte d'Ivoire	2,907 MW of Installed capacity	5,128 MW installed capacity	31% of installed capacity; 24% of renewables generation (2023)	45%	Hydropower (33%)
The Gambia	90-99 MW Installed / 40 MW Available	+279.5 MW	13% of generation mix, including imports	30%	Mainly solar PV, plus 80 MW dual-fuel thermal and associated BESS
Ghana	5,641 MW	6,200 MW	4%	10%	Solar
Guinea	1,310 MW	3,827 MW	62%	70%	Hydropower
Liberia	126 MW installed capacity, with a peak demand of 108 MW	266 MW	67% renewable / hydro in annual generation; 70% hydro in installed capacity	≥75%	Solar / Hydro
Mauritania	615.1 MW installed / 520.1 MW available	1,021 MW	44.36%	70%	Solar / Wind
Niger	352 MW installed / 210 MW available	1,368 MW	12% of installed capacity; 3% of local electricity production in 2023	30%	Thermal overall; solar PV is the largest individual planned technology
Nigeria	12,000 MW; about 46% available	Not disclosed. Ongoing and committed projects sum up to 13.6 GW (partly rehabilitated)	24.3% hydro and 0.3% solar PV (no date specified)	50% (including hydro)	Hydro / Solar
Senegal	1,903.81 MW installed / available capacity	3,236 MW	29.05%	40%	Renewables, supported by domestic gas as transition fuel
Sierra Leone	271 MW installed; just over 140 MW available	1,120 MW	46%	52%	Solar / Hydro
Togo	Installed capacity on the interconnected grid: 267.5 MW (2024)	1,154.5 MW	38%	63% of installed capacity / 41% of national generation	Solar / Hydro

Source: National Energy Compact (Mission 300).

The compacts reveal three broad starting points:

- Countries with capacity constrained and import/thermal exposed systems: Benin, The Gambia, Mauritania, Niger and Togo face the most immediate supply pressures, although they do not share the same reasons. On the one hand, Benin, The Gambia and Niger still rely heavily on imports or have limited domestic capacity available, whilst Togo's main pressure point is meeting peak demand and securing enough dispatchable power. In addition, Mauritania, has a system that remains partly based on thermal and is fragmented, despite its strong solar and wind potential. For this group, the priority is to

expand solar quickly, by adding targeted firm capacity where needed, introducing storage, and reinforcing the grid so that new generation can actually be delivered.

- Countries with relevant renewable shares, but have climate and network vulnerable systems: Guinea, Liberia and Sierra Leone rely more heavily on renewables, especially hydropower. However, hydrological seasonality, drought risk and weak grid infrastructure limit reliability. Therefore, their transition challenge should be more focused on diversifying renewable supply with solar, storage and firm capacity, while strengthening the network.
- Larger systems focused on reliability, dispatch and financial discipline: Ghana, Nigeria, Côte d'Ivoire and Senegal have larger or more mature power systems, but their installed capacity does not always translate into affordable and reliable supply. Their main challenge is to address grid bottlenecks, improve dispatch, reduce reliance on emergency or take-or-pay procurement, and manage utility payment risks that can undermine both reliability and investment.

Overall, the scale of the transition that most of the countries are experiencing is significant, with important plans to increase installed capacity, with renewable energy expected to account for a major share of new capacity. However, solar and hydropower expansion will only translate into cost-efficient supply if complemented by storage, dispatchable generation, stronger transmission, regional and integrated trade to manage peaks, dry season deficits and system balancing needs. This points to a clear policy implication, which is that West Africa needs integrated generation-and-grid investment programs, not isolated power projects, with the purpose of not increasing fiscal exposure without improving reliability or affordability.

The Least-Cost Transition Pathways

The common pathway adopted by the countries is to combine solar up-take with hydropower where available, flexible gas or dual-fuel capacity for firm supply, battery storage for system balancing, and regional imports or exports through regional interconnections, suggesting five practical directions for the region's least-cost power transition:

- Utility-scale solar and distributed renewables are expected to provide much of the new low-cost supply. For example, Ghana is targeting 850 MW of solar by 2030, Togo is planning a major solar build-out alongside the Blitta extension and other projects, and The Gambia is structuring the Soma Solar Park in two phases of 50 MW and 100 MW. Also, Liberia is looking to utility-scale solar to reduce its dry-season dependence on Heavy Fuel Oil (HFO) generation, while Niger is preparing solar parks and the hybridization of diesel systems.
- Hydropower plays a key role in average cost reduction but needs to pay closer attention to account for dry season variability, while subsequently complementing it by solar, storage, imports and dispatchable reserve capacity. In this line, Guinea and Sierra Leone rely heavily on a mix of hydro and solar in their 2030 targets, while Liberia plans the 60 MW Mount Coffee extension and the Saint Paul 2 hydropower plant.
- Thermal still has a key role during the transition. Senegal's pathway combines renewables with domestic gas and the conversion of HFO assets, while Togo plans a 250 MW gas plant to cover evening demand and provide system flexibility. In addition, The Gambia includes dual-fuel capacity and Nigeria's least-cost pathway combines gas, hydro and solar.
- The success of the generation plans abovementioned will be determined by the roll-out of storage and grid investment strategies such as transmission corridors, Supervisory Control and Data Acquisition (SCADA) systems, dispatch centers and substation upgrades. In this regard, Togo plans additional Battery Energy Storage System (BESS)

capacity to integrate intermittent renewables, Ghana targets 200 MW of BESS at critical grid locations, whilst The Gambia includes BESS in the Soma Solar Park, and Mauritania's master plan also integrates storage with renewables. These will be essential to turn new generation into reliable supply for consumers.

- Regional trade is part of the transition pathway of some countries, with a focus on a better use of shared infrastructure. In this case, Côte d'Ivoire and Ghana can play a role as exporters or balancing resources, while Liberia and Sierra Leone depend on the Côte d'Ivoire-Liberia-Sierra Leone-Guinea (CLSG) interconnection and The Gambia on OMVG (*Organisation pour la Mise en Valeur du fleuve Gambie*). Mauritania, Niger, Senegal and Togo also treat regional integration as part of least-cost supply planning.

Enabling Market and Regulatory Conditions

The generation targets outlined in the compacts will only be achieved if the right enabling conditions are in place. These combine planning, procurement, bankable project preparation, system operation, as well as credible financial arrangements for off-takers and investors.

In this sense, investments must be selected based on lifecycle cost, demand forecasts, regional resources and grid evacuation capacity through a least-cost planning with the binding reference for all new capacity. Programs pointing in this direction include Ghana's Integrated Power System Sector Master Plan (IPSMP) updates, Nigeria's Least-Cost Power Development Plan (LCPDP) and Integrated Resource Plan (IRP) process, Senegal's Integrated Least-Cost Plan (PIMC), Liberia's least-cost power system master plan, The Gambia's updated Least-Cost Power Development Plan (LCPDP), Mauritania's 2040 production and transmission master plan, Togo's updated production-transport-distribution master plan, Benin's triennial planning updates and Côte d'Ivoire's family of master plans.

Moreover, competitive procurement is key to generating the most value for money for citizens: Several compacts explicitly seek to reduce reliance on direct awards and unsolicited proposals. In this regard, examples include markets like Ghana where a legal instrument for competitive procurement has been approved and plans standard documents and Power Purchase Agreements (PPAs). In this line, Senegal commits to systematic competitive tenders and digital procurement, while The Gambia proposes a Cabinet resolution mandating competitive procurement. Also, Liberia is preparing a solar park and standard IPP framework, while Côte d'Ivoire is using Scaling Solar and other tenders; and Benin commits to competition under its Electricity Code.

PILLAR 2: BOOSTING REGIONAL POWER INTEGRATION FOR CROSS-BORDER TRADE

Regional power integration is one of the main ways for West Africa to lower the cost of supply without each country having to build a fully self-sufficient power system. The twelve compacts repeatedly refer to cross-border trade, WAPP participation, harmonized transmission pricing, regional grid codes and payment discipline because the economics of the region depend on moving surplus power from lower-cost systems to deficit markets. For import-dependent countries such as Benin, Liberia, The Gambia, Niger, Sierra Leone and Togo, regional trade can reduce reliance on emergency thermal generation. For larger or exporting systems such as Côte d'Ivoire, Ghana, Guinea, Nigeria and Senegal, it creates a wider market for generation investments and improves system balancing.

WAPP architecture and current initiatives

The West African Power Pool (WAPP) provides the institutional platform for this agenda. It is a specialized ECOWAS institution covering 14 ECOWAS countries and was created to support

power system integration and the development of a regional electricity market. The current implementation agenda is moving from physical interconnections toward market rules: the ECOWAS Regional Electricity Regulatory Authority (ERERA) has issued regional market documents, including market codes and transmission tariff procedures, while the World Bank-backed West Africa Regional Electricity Market Program (WA-REMP) is intended to strengthen connectivity, electrification and market readiness across the region.

Several regional corridors are directly relevant to the compacts. In this sense, the North Core project links Nigeria, Niger, Benin and Burkina Faso and is designed to unlock cheaper regional supply and rural electrification benefits. Similarly, the OMVG and CLSG corridors are central for The Gambia, Senegal, Guinea, Liberia and Sierra Leone. Also, Côte d'Ivoire and Ghana are positioning themselves around reinforced interconnections and regional exports, while Nigeria remains critical to the future depth of the market because of the scale of its power system. Other relevant interconnections include the Ghana-Côte d'Ivoire 330/400 kV link, and PIEMM (*Projet d'Interconnexion Électrique Mauritanie-Mali*) 225 kV for Mauritania-Mali. These projects are further detailed below.

Table 3. Interconnection infrastructure

Interconnection Project	Countries involved	Technical specifications	Length	Capacity / Exchange volume	Status	Operators / Managers	Financing
WAPP North Core / Dorsale Nord	Nigeria, Niger, Benin, Burkina Faso	330 kV double-circuit interconnection; 225kV line	875km of 330kV and 24km of 225kV lines	Designed to increase regional electricity exchange capacity and reduce supply costs in Niger, Benin and Burkina Faso	Under implementation / ongoing in the compacts	WAPP and national utilities including TCN, NIGELEC, SBEE and SONABEL	World Bank, AFD, AfDB, European Commission and AFD/French Ministry of Foreign Affairs
WAPP Coastal / Median Backbone Corridor	Nigeria, Benin, Togo, Ghana, Côte d'Ivoire	330 kV double-circuit regional line	Benin compact identifies 225 km in Benin	Not specified in the compacts	Planned / referenced as a regional transmission priority in Benin and Côte d'Ivoire compact actions	WAPP and national transmission/utilities	Not specified in the compacts
CLSG Interconnection	Côte d'Ivoire, Liberia, Sierra Leone, Guinea	225 kV regional transmission interconnection, part of WAPP	1,357 km	Liberia currently receives 27 MW through CLSG, although only around half is available due to supply constraints in Côte d'Ivoire. Sierra Leone	Operational. Sierra Leone and Liberia already use the line for imports; Guinea plans to reinforce the CLSG network by adding a second circuit and strengthening	TRANSCO CLSG / national utilities	African Development Bank (AfDB), World Bank (WB), European Investment Bank (EIB) and Kreditanstalt für Wiederaufbau (KfW)

Interconnection Project	Countries involved	Technical specifications	Length	Capacity / Exchange volume	Status	Operators / Managers	Financing
				plans to import about 150 MW additional power from Guinea, Ghana and Senegal, in addition to CLSG arrangements.	ng key substations.		
OMVG Interconnection	The Gambia, Senegal, Guinea, Guinea-Bissau	225 kV OMVG transmission backbone; includes OPGW fibre for grid coordination and data exchange	1,677km	Designed to enable regional power exchange and shared supply across the four countries. The Gambia's import capacity into the Greater Banjul Area increased from 60 MW to 140 MW, matching OMVG power intake.	Operational for The Gambia's regional market access; further use depends on resolving OMVG trading issues and ensuring bankable PPAs/TSAs	OMVG, participating national utilities	French Development Agency (FDA), African Development Bank (AfDB), European Investment Bank (EIB), Islamic Development Bank (IDB), World Bank (WB/IDA), West African Development Bank (WADB), German Cooperation Agency (KfW)
Ghana–Côte d'Ivoire Interconnection	Ghana, Côte d'Ivoire	Existing 225 kV interconnection; future 330 kV interconnection planned	296km (projected line)	Ghana exports to Côte d'Ivoire through the existing 225 kV line; the planned project aims to increase electricity exchanges between Ghana and Côte d'Ivoire	Existing interconnection in operation; new Ghana–Côte d'Ivoire project planned for 2025–2029	GRIDCo, CI-ENERGIES / CIE, WAPP coordination	USD 210 million (projected line)

Interconnection Project	Countries involved	Technical specifications	Length	Capacity / Exchange volume	Status	Operators / Managers	Financing
Mauritania–Mali Interconnection / PIEMM	Mauritania, Mali	225 kV interconnection with associated solar plants	1,373km	600 MW	Planned / 2025–2030 implementation window in Mauritania compact	SOMELEC and counterpart Malian entities; PIEMM framework	African Development Bank (AfDB), Green Climate Fund

Source: National Energy Compact (Mission 300).

Commercial architecture

West Africa's regional integration plan is maturing. In this sense, the compacts reflect a shift on the focus from building physical connections, to establishing the commercial and regulatory foundations that make cross-border electricity trade actually work.

Notably, the WAPP day-ahead spot market is at the center of this agenda, which is coordinated through the WAPP Information and Coordination Centre and would allow utilities and generators to buy and sell power for next-day delivery, offering a more flexible alternative to the bilateral contracts that currently dominate the region. However, the market's effectiveness will also depend on harmonized transmission pricing. Without a common regional methodology, cross-border transactions may face multiple transit charges across jurisdictions, which would erode the competitiveness of regional electricity exchanges.

Country commitments across compacts point in the same direction. Benin, which hosts the WAPP headquarters in Cotonou, explicitly backs the implementation of the short-term electricity market and supports ERERA/ARREC initiatives to establish a regional regulatory framework, including a harmonized tariff mechanism, while Côte d'Ivoire ties its regional market support to its broader ambition of becoming a power hub. Similarly, Ghana pushes for harmonized regulations covering tariffs, wheeling charges and dispute resolution. Also, Niger had committed to adopting a harmonized transmission tariff in 2025, whereas Sierra Leone is working toward aligning its national tariff with regional pricing frameworks. Meanwhile, Togo is looking ahead to the planned launch of the day-ahead market in 2026.

On the other hand, transmission pricing harmonization remains a common bottleneck, with Guinea, Mauritania, Liberia and Senegal all explicitly flagging it as an unresolved issue, highlighting that regulatory alignment still needs to catch up with the region's infrastructure objectives.

Beyond commercial and tariff harmonization, physical synchronization of national grids is also progressing. All WAPP member systems operate on a common nominal frequency of 50 Hz, and interconnections are built to standard high-voltage classes (typically 225 kV or 330 kV) matched by transformers at each substation, so the differing voltage levels across corridors reflect design capacity. On 8 November 2025, the Nigerian Independent System Operator and the WAPP Information and Coordination Centre completed a landmark synchronization test that, for hour hours, connected Nigeria's grid (which includes Niger and parts of Benin and Togo) with the rest of the interconnected West African system, spanning Ghana, Côte d'Ivoire, Burkina Faso, Liberia, Sierra Leone, Guinea, Senegal, The Gambia, Guinea-Bissau and Mali, all operating at a single stable frequency. This was the first successful large-scale synchronization since a brief attempt in 2007, and it demonstrates that a unified regional grid is technically achievable. Sustaining this beyond a test window will still require stronger reserve-sharing arrangements and protection coordination, alongside the commercial and tariff reforms described above.

PILLAR 3: SCALING UP LAST-MILE ELECTRIFICATION WITH DISTRIBUTED RENEWABLE ENERGY SOLUTIONS

The compacts under analysis state that last-mile electrification will not be delivered by a single model. Grid extension remains the preferred option in countries with dense settlement patterns or advanced networks, such as The Gambia and Côte d'Ivoire. But for remote, low-density or hard-to-reach areas, decentralized renewable energy is treated as a core delivery channel and not a temporary solution. Mini-grids, stand-alone solar systems and solar kits are especially important in Guinea, Liberia, Mauritania, Niger, Senegal, Sierra Leone and parts of Ghana and Nigeria.

The strategic question is therefore one of sequencing and targeting. Where the grid is expected to arrive soon, densification and connection subsidies may be more efficient. Where settlements are dispersed or network extension is too costly, mini-grids and solar home systems can expand access faster, provided that tariff rules, service standards and grid-arrival provisions are clear. Table 4 summarizes how each country is positioning off-grid solutions within its access strategy.

Table 4. Rural electrification targets and off-grid strategies

Country	Current rural access (national)	2030 target	Off-grid strategy
Benin	13.1%	70% national electricity access	90,000 additional households via mini-grids (9.7% of the expected coverage) and 61,000 via solar kits (6.6%) over 2025-2030
Côte d'Ivoire	No separate rural access percentage disclosed. National access rate: 97.2% in 2023; national locality coverage rate: 88.1%; household connection rate: 64%. Rural electrification is mainly grid-based	100%	Operationalize the Off-grid Electrification Action Plan: Planned access 3.2 million through mini-grids, and 2.6 million through solar kits by 2030
The Gambia	45%	100%	Strategy is mainly on-grid expansion (over 99% of current connections). Off-grid/mini-grid solutions have a limited but targeted role for remote or environmentally constrained communities
Ghana	Rural/Northern access gaps remain, with Northern Ghana around 60%	99%	400 mini-grids for about 250,000 households + Public off-grid Solar Home Systems (SHS) component
Guinea	21%	100%	Use decentralized renewable energy solutions for last-mile access: 19% of new access through solar kits and 10% through mini-grids, with priority for small and remote rural localities where grid extension is less suitable
Liberia	<10%	75% national electricity access	15% of the new capacity through mini-grids, and 25% through off-grid/solar home systems
Mauritania	6%	100%	Mini-grids and SHS expected to serve around 1.05 million people (51.9% of the new coverage)

Country	Current rural access (national)	2030 target	Off-grid strategy
Niger	5.30%	60% national electricity access	The 2030 PDAE target (60%) includes 2.4% via hybrid mini-grids and 14.6% via solar kits; the broader SNAE approach (country overview) assigns 24% of households to decentralized options: 2% mini-grids and 22% individual solar systems
Nigeria	Not disclosed	Universal electricity access by 2030; increase annual access expansion pace from 5% to 9%	The Nigeria Electrification Programme (NEP), supported by the AfDB and the WB, aims to provide over 500,000 people with access to affordable sources of electricity. Building on NEP, the DARES project is expected to add access for 16.2 million people through mini-grids and standalone solar, plus improved access for 1.3 million people via interconnected mini-grids, with 465 MW of renewable capacity
Senegal	64.5%	100% national electricity access by 2029	Out of the 6.6 million people expected to gain new electricity access, 1.6 million are expected to be served through mini-grids (24%) and 1.2 million through solar kits (18%)
Sierra Leone	Connections are disproportionately low in rural areas. National electricity access is 36%, comprising 21% on-grid and 15% off-grid; the off-grid access is mostly in rural areas through mini-grids and stand-alone solar systems	78% (Overall)	560,000 new household connections through off-grid (400,000 from solar home systems and 160,000 from mini-grids)
Togo	47.8% (2024)	100%	Mini-grids and solar kits together are expected to cover about 1.78 million people (17.8% of the new coverage)

Source: National Energy Compact (Mission 300).

Enabling Regulatory Frameworks

Aside from the proper technology, a credible off-grid strategy also relies on the applicable regulation. To that end, developers need clear rules on licensing, tariffs, service quality, grid arrival, customer protection and eligibility for subsidies. In this line, the twelve compacts recognize this by linking last-mile electrification to mini-grid regulations, national electrification strategies, rural electrification funds and monitoring systems. In this sense, countries like The Gambia already refer to green mini-grid regulations and feed-in tariff arrangements. Also, Ghana builds on its National Mini Grid Policy, Sierra Leone has updated mini-grid regulation, and Côte d'Ivoire, Benin and Togo commit to operationalizing or updating off-grid and electricity-sector frameworks.

However, implementation remains a gap. Several countries have laws or strategies on paper, but investors still face uncertainty over tariff approval, land access, import duties, the treatment of mini-grids when the main grid arrives, and whether subsidies will be paid predictably. For Distributed Renewable Energy (DRE) markets, these details determine whether private operators

can raise debt and scale beyond pilot projects. Therefore, the compacts point to a practical reform agenda which covers simplifying permitting, making tariff rules transparent, establishing grid-arrival compensation mechanisms, and funding rural electrification or renewable energy facilities with predictable disbursement rules.

Hybridization Strategies

Across the twelve compacts, hybridization is emerging as a broader delivery model for reaching rural and peri-urban areas while keeping costs manageable. In practice, this means combining generation sources, financing instruments, operating models and grid-planning rules so that decentralized systems can provide reliable service without becoming isolated assets. This consists of four main categories:

- **Technical hybridization (diesel, solar, and storage):** Several countries are moving toward combinations of solar PV, batteries and existing diesel or thermal systems, especially in isolated grids and areas where grid extension is expensive or unreliable. This approach is particularly relevant for Niger, Mauritania, Liberia, Sierra Leone, The Gambia and Togo.
- **Contractual hybridization** is emerging in a few of the compacts, mainly through mini-grid concessions, private O&M arrangements, energy-as-a-service models and distribution PSPs, with examples like Sierra Leone with 104 solar mini-grids already operated by private sector actors. Ghana's compact points in a similar direction, although more on the distribution side, and Nigeria stands out as most advanced case in terms of regulatory design to private sector-led mini-grids, tripartite arrangements involving consumers, RESCOs/developers and DISCOs, and standardized rules for termination conditions, consumer rights and dispute resolution.
- **Financial hybridization**, which combines public grants with private equity and results-based subsidy triggers, is reflected in examples such as Nigeria's DARES program, Ghana's mini-grid and solar home system plans, Sierra Leone's off-grid expansion, and the rural electrification funds or renewable energy facilities proposed in several francophone compacts all reflect this logic.
- **Grid hybridization** is probably the most important for long-term planning as mini-grids and standalone systems need to be planned so they can either continue operating independently where this remains least-cost, or interconnect with the main grid when it arrives. Countries such as Ghana, Nigeria, Côte d'Ivoire, Benin, Senegal and Togo will need this approach as grid extension and off-grid deployment proceed in parallel.

Access to clean cooking

Clean cooking is now explicitly part of the access agenda across the West African compacts, but it remains less mature than electrification, with varying levels of targets and baselines. For instance, some countries aim high targets such as Nigeria (aiming for universal access by 2030), Togo (80%), and other several countries target around 50%, while Niger and Sierra Leone set more modest targets from very low baselines. On the other hand, Liberia is still at the strategy-development stage, with the compact prioritizing the definition of a baseline and target through a future national clean cooking strategy. Table 5 displays an overall picture of the matter.

Table 5. Access to clean cooking



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Country	Current access to clean cooking	2030 target	Priority technologies
Benin	10.5% (2021); 17.64% with access to improved cookstoves (2015)	50% of households using clean cooking solutions by 2030; 43% with access to improved cookstoves by 2030	Improved cookstoves, LPG/gas cooking equipment, biogas, electric cookers, alternative-fuel cookers
Côte d'Ivoire	Around 20% of the population used butane in 2023. Improved cookstove access was 9% in 2021	50% of the population using modern cooking fuels by 2030; 16% access to improved cookstoves by 2030	Butane/LPG, biogas, biochar and improved cookstoves
The Gambia	25%, with more than 75% of households relying on fuelwood and charcoal	50%	LPG, electric cooking and improved cookstoves
Ghana	36.90%	50%	LPG adoption, improved biomass cookstoves, and electric cooking/eCooking
Guinea	12%	35%	Butane/LPG cooking and improved cookstoves
Liberia	0.8% (2021)	A national clean cooking strategy / RREA business plan will establish the baseline and targets	Improved cookstoves and clean fuels
Mauritania	54% (2023)	Accelerate access growth to 12%, compared to current 4%	Butane/LPG and similar products, city gas/natural gas, electric cooking, biogas, bio-charcoal/typha charcoal, improved cookstoves, and solar cookers/ovens
Niger	Around 6% in 2023: 94% of households use biomass, and wood remains the preferred fuel for 88% nationally	12%	Improved/clean cookstoves, LPG kits and cylinders, LPG filling units, coal briquettes as a substitute for fuelwood, solar cookers, and biodigesters
Nigeria	26%	Universal access to clean cooking by 2030; increase annual access expansion pace from 22% to 25%	Current gains have come entirely from gas, indicating that adoption of electric cooking has yet to take off
Senegal	32% (2022)	Accelerate clean cooking access at 11.3% per year, increasing 15.8 million additional people	Ongoing partner activities include electric cooking in rural areas, improved cookstoves, and biogas/biodigesters projects
Sierra Leone	1.5%	25%	Improved cookstoves, LPG and bioethanol solutions
Togo	13.3%	80%	Improved cookstoves, LPG/butane, bioethanol, biogas, electric cooking, biochar/briquettes/pellets

Source: National Energy Compact (Mission 300).

Technologies and National Pathways

The clean cooking pathways can be grouped into four main technology families.

- **LPG (Liquefied Petroleum Gas) and butane:** This is the most scalable option in urban and peri-urban markets, particularly in countries like Côte d'Ivoire, Senegal, Ghana, Nigeria,

Togo, The Gambia and Mauritania. Their expansion will depend on cylinder availability, filling infrastructure, safety standards, price regulation and last-mile distribution.

- **Improved cookstoves (ICS):** These are the most immediately scalable rural option, especially where fuelwood and charcoal will remain part of household energy use. Their impact depends on standards, testing, certification and consumer trust. To exemplify, Sierra Leone, for example, plans to distribute 1 million improved cookstoves, while Benin targets improved stove access for more than 800,000 households by 2030. Niger and Togo also treat improved cookstoves as central to reducing dependence on wood fuel, particularly in rural areas where cleaner fuels may take longer to scale.
- **E-cooking:** Electronic cooking's potential depends on grid reliability and affordability, particularly where electricity access is high, utilities can manage additional demand, and targeted tariffs or appliance finance can reduce upfront costs. Examples include Ghana, which explicitly includes e-cooking as part of its clean cooking pathway. Also, Senegal is testing electric cooking in rural areas through partner-supported activities, while Mauritania, Benin and Togo all include electric cooking among their priority clean cooking technologies. In Nigeria, by contrast, recent clean cooking gains have come mainly from gas, suggesting that e-cooking still requires stronger enabling conditions before it can scale.
- **Biogas, bioethanol, briquettes, pellets and biochar:** These can create local value chains and reduce pressure on forests if product quality and supply continuity are managed. In this case, Sierra Leone includes bioethanol alongside LPG and improved stoves, while Senegal promotes biogas and biodigester projects. Also, Côte d'Ivoire refers to biogas and biochar, and Togo includes bioethanol, biogas, briquettes, pellets and biochar in its clean cooking strategy. Moreover, Niger also plans coal briquettes, solar cookers and biodigesters as substitutes for fuelwood, while Mauritania highlights biogas, bio-charcoal and typha-based charcoal as locally relevant options.

Taken together, all of these pathways can coexist if supported by consumer finance, standards, awareness campaigns and climate or carbon finance. Also, clean cooking should be linked to gender and health outcomes, because the benefits of reduced smoke exposure and time spent collecting fuel are central to the development case.

PILLAR 4: UNLOCKING PRIVATE INVESTMENT THROUGH SUPPORTIVE REGULATORY FRAMEWORKS

Achieving the compact targets will require private investment as public funds alone cannot come close to covering the more than USD 66.6 billion in identified financing needs. Yet, attracting investors to these power sectors is far from straightforward as it is supported on a set of conditions that remain challenging in many of these countries: financeable project structures, currency conversion guarantees, streamlined permitting processes, and a track record of honoring contractual commitments.

The region shows a wide range of market maturity. On the one hand, Ghana, Côte d'Ivoire, Senegal and Nigeria have larger systems and more experience with IPPs or private participation, although they still face payment, dispatch and subsidy risks. On the other hand, smaller or more fragile systems such as Liberia, Sierra Leone, The Gambia, Niger and Guinea need stronger transaction preparation, guarantees and concessional support to move from policy commitments to bankable projects. Sitting in between it is possible to find Togo, Benin and Mauritania with reform commitments that can attract private capital if translated into procurement pipelines and risk-sharing instruments.

Ghana's Compact presents one of the clearest regulatory reform agendas for unlocking private investment in the power sector. It combines competitive procurement, standardized contracting, and financial-sector reforms to reduce investor risk and improve transparency. A Legislative Instrument for competitive procurement of new generation capacity has already been approved, and the Energy Commission and PURC are expected to issue implementation guidelines, standard procurement documents, and model PPAs for use by distribution licensees, concessionaires, and private operators. Ghana targets **USD 2.61 billion** in private financing, out of the USD 4.4 billion in total investment needs.

Côte d'Ivoire has a relatively advanced framework for private participation in the power sector, anchored in the 2014 Electricity Code, which opened generation, transmission, distribution and retail supply to private actors and allows licensed self-generation, which has materialized in five IPPs already representing around 65% of installed generation capacity. To deepen this participation, the Government is committed to streamlining private power contracting and moving toward systematic competitive tenders during 2025–2030, especially for renewable energy. Côte d'Ivoire targets **USD 1.94 billion** in private financing, out of the USD 6.56 billion in total investment needs.

Senegal is attempting to bring more discipline and predictability to energy investment. For that matter, a new Integrated Least-Cost Plan is expected to guide spending across generation, transmission and distribution, while the Government has committed to using competitive and transparent tenders from 2025 onward. The Compact also points to a more practical regulatory agenda, making it clearer how private mini-grid operators are licensed, how tariffs are approved, and how these systems will be integrated with the main grid. Also, Senegal is aiming to make the decentralized rural electrification concession model fully operational, which could contribute attract private capital into last-mile access. Senegal targets **USD 2.32 billion** in private financing, out of the USD 6.26 billion in total investment needs.

Nigeria already has one of the most advanced mini-grid and off-grid regulatory frameworks in Sub-Saharan Africa and key reforms focus on making the market more bankable, including the approval of the National Integrated Electricity Policy and Strategic Implementation Plan, the move toward bilateral contracting between DisCos and GenCos, clearer competitive procurement rules, and streamlined licensing, registration and tariff processes for mini-grids. However, the Compact stresses the need to adapt it further to support faster private investment while protecting consumers. Nigeria targets **USD 15.5 billion** in private financing, out of the USD 32.7 billion in total investment needs.

Togo commits to revising the electricity sector law by early 2027 in order to address multiple targets that would enable private investment, such as clarifying market organization, and empowering gradual market liberalization through “eligible customer” provisions. Also, the compact highlights the undertaking of competitive and transparent procurement, the finalization of implementing provisions for the 2018 renewable energy law, and a programmatic PPP approach to develop renewable generation, supported by measures to clarify rules for auto production, surplus injection, mini-grid approvals and IPP/BESS transactions. In this line, it targets **USD 1.68 billion** in private financing, out of the USD 3 billion in total investment needs.

Benin has already opened the electricity sector to private participation through the 2020 Electricity Code, adopted a regulation for off-grid electrification, established the Electricity Regulatory Authority, and created the Rural Electrification and Renewable Energy Fund, with the compact now focusing on making these instruments operational. The country targets **USD 1.09 billion** in private financing, out of the USD 2.75 billion in total investment needs.

Mauritania shows a regulatory framework that is progressing but still needs to mature into bankable investment conditions. The new Electricity Code modernizes sector regulation, supports rural electrification, and enables progressive liberalization, including direct purchases by eligible

customers. This is complemented by the revised PPP law (2024) and emerging frameworks for IPPs, BESS and private mini-grids. However, attracting private capital will depend on converting these reforms into competitive procurement pipelines, clear tariff, licensing rules, and risk-sharing instruments. Mauritania targets **USD 1.23 billion** in private financing, out of the USD 2.45 billion in total remaining investment needs.

For **Liberia**, it is highlighted that private investment will depend on strengthening the regulatory and transaction framework for bankable projects. While some sector regulations already exist which include licensing, tariffs, mini-grid and distribution codes, the compact identifies weak off-taker creditworthiness, limited legal and regulatory frameworks for PPPs, lack of reliable financial information, and investor risk as major barriers to private capital. To address this, Liberia plans to develop a clearer PPP and renewable energy IPP framework, including policy and tariff regulations, standardized bidding templates, streamlined approval processes for private mini-grids, and transparent procedures to improve predictability for investors. Its target is **USD 0.14 billion** in private financing, out of a total of USD 1.29 billion of total investment.

Sierra Leone focuses on creating a more predictable investment environment by updating the IPP framework, improving competitive procurement, and using risk mitigation tools such as ATIDI, MIGA, guarantees, and credit enhancements. It also prioritizes an OM&M concession for the Electricity Distribution and Supply Authority, loss reduction, better metering and collections, a sector-wide collections account, tariff reform, and stronger regulatory capacity. Its private investment target is **USD 1.41 billion**, out of a total of USD 2.25 billion.

The Gambia has established a supportive regulatory base for private investment, including green mini-grid regulations, feed-in tariff arrangements, net-metering guidelines, and a renewable energy law. Moreover, the Compact also points to further reform which include reviewing the Renewable Energy Act, adopting the PPP law, using competitive procurement for new generation, and providing CAPEX subsidies through the Gambia Renewable Energy Fund. However, scaling private investment will still depend on stronger transaction preparation, de-risking instruments, and improvements in the National Water and Electricity Company's financial viability. In this sense, The Gambia seeks **USD 0.25 billion** in private financing, out a total of USD 0.55 billion.

Niger's framework allows private participation under the 2016 Electricity Code and competitive IPP provisions introduced in 2020, but the Compact highlights that key reforms remain unfinished. Private investment is still limited, with only one major IPP to date, while mini-grid and off-grid investment is constrained by incomplete rules on approvals, tariffs and private operation. The Compact therefore prioritizes adoption of a revised Electricity Code and implementing regulations in 2025, alongside risk-mitigation support and measures to restore Niger's national electricity utility financial viability. In this sense, Niger aims to access an amount of **USD 0.52 billion** of private financing, out of a total of USD 1.19 billion in investments.

In **Guinea**, the electricity generation is already open to private participation under the 1993 electricity law, and the country has adopted a PPP law in 2017, with implementing decrees and standard documents subsequently validated. However, important reforms are still needed to make projects more bankable, which include updating the electricity sector framework law, clarifying rules for private participation in transmission, distribution and off-grid systems, operationalizing tariff and authorization procedures for mini-grids, strengthening the regulator, improving the financial viability of the national electricity utility (EDG), and clearing arrears owed to IPPs. The role of private financing is pivotal to Guinea, as it targets to access **USD 7.6 billion** out of a USD 8.9 billion of total investment.

Results-Based Financing as a De-risking Tool

Results-based financing is emerging as one of the most useful de-risking tools for last-mile electrification and clean cooking. Its advantage is that public or concessional funds are paid



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against verified outputs, which makes it attractive in markets where customer affordability is low and private operators cannot recover the full cost of service through tariffs alone.

Several compacts refer directly or indirectly to this model. Notably, Sierra Leone proposes RBF for solar mini-grids and blended finance for off-grid solutions, while Liberia already has RBF facilities for off-grid and mini-grid participation, although it notes that the available funding is insufficient. Nigeria's DARES program uses large-scale support for mini-grids and stand-alone solar, while The Gambia links RBF to clean cooking through its clean cooking strategy. RBF should be paired with guarantees, first-loss capital and robust verification systems so it can become in a platform for market development.

PILLAR 5: STRENGTHENING UTILITIES WITH TRANSPARENT FINANCIAL MANAGEMENT AND COST RECOVERY

Utility performance is the common thread that determines whether the compact targets can be delivered. The utilities covered by the compacts differ significantly in mandate and market structure, with some countries still relying on vertically integrated national utilities, while others separate generation, transmission and distribution functions or operate through concessions and regional entities.

- **GRIDCo / ECG / NEDCo (Ghana):** Ghana's Compact recognizes that the country has made important progress in expanding power supply and electricity access, while also identifying opportunities to strengthen the performance and financial sustainability of its utilities. In this sense, GRIDCo operates a sizeable national transmission system, but continued investment is needed to modernize older assets, reduce transmission losses of around 4-5%, and support more reliable power flows which includes regional interconnections. At the distribution level, ECG and NEDCo are central to improving service delivery, revenue performance, and sector sustainability, noting that distribution utilities face ATC&C losses of around 25%, with ECG reporting distribution system losses of 27% in 2024 and collection efficiency of 86% in 2023.
- **CI-ENERGIES / CIE (Côte d'Ivoire):** CI-ENERGIES manages public electricity assets and planning, whereas CIE operates generation, transmission, distribution and supply under concession. In this regard, the utility performance is relatively strong, but it still exposed to operational and financial pressures. In 2023, the sector recorded continued reliability challenges despite a functioning and expanding grid. Financially, CI-ENERGIES and CIE have audited annual financial statements, and the sector's operating balance improved from -USD 87.1 million in 2022 to USD 49.6 million in 2023. However, tariff adjustments have not fully eliminated financial stress, with pressures linked to generation outages, gas shortages, delayed commissioning of assets, higher production costs, public-sector arrears and unpaid export receivables.
- **SENELEC (Senegal):** The utility's annual financial statements are audited and it recorded profits over 2021-2023, but its underlying financial position is still vulnerable. In this sense, electricity sales covered only about 72% of operating costs including depreciation on average over 2021-2023, leaving it dependent on state compensation. On the other hand, payment delays and public-sector arrears create liquidity pressure and can affect payments to IPPs and suppliers. Technically, the Compact reports an overall utility yield of 81.7% in 2023, pointing to continued scope to reduce losses and improve operational efficiency.
- **TCN / DisCos / GenCos (Nigeria):** Nigeria's utility performance remains constrained across the value chain. In this sense, TCN's transmission network requires significant rehabilitation, with aging and poorly maintained infrastructure limiting its ability to

evacuate available generation capacity. Also, DisCos remain the weakest link financially and operationally as investment has been limited since privatization, ATC&C losses are extremely high, and weak collections reduce payments to NBET, GenCos and TCN. Likewise, GenCos are affected by this liquidity chain, as delayed or incomplete payments weaken their ability to supply sufficient energy, reinforcing a cycle of low payment and unreliable service. Therefore, the Compact prioritizes cost-reflective tariffs, subsidy reform, metering, implementation of DisCos Performance Improvement Plans, stronger regulatory enforcement, and improved TCN investment planning.

- **CEET (Togo):** CEET's financial position is constrained, as it is weakened by dependence on imported fossil fuels, aging distribution assets, high technical and commercial losses, and a tariff framework that does not yet allow full cost recovery. Notably, CEET has made progress through investments in smart metering, billing and collection improvements, and loss-reduction measures, which have allowed it to reach an overall network yield of 84.99% in 2023. However, service quality remains a concern, while distribution losses were reported at 16.04%. In order to address these issues, the Compact prioritizes CEET restructuring, tariff reform and operational efficiency improvements, to support better service reliability by 2030.
- **SBEE / SBPE (Benin):** The compact identifies utility performance as a central condition for achieving energy access and investment objectives. With regard to SBEE, the main challenge is the operational efficiency, as electricity losses remained high in 2024 (24.7%), reflecting technical and commercial losses linked to an ageing distribution network, overloaded equipment, weak metering and collection systems, and non-technical losses. Meanwhile, the compact prioritizes grid digitalization, smart meters, prepaid metering, improved billing and collection, and stronger loss-reduction controls in order to address these issues. For SBPE, the key performance issue is linked to generation adequacy and fuel security, considering that Benin remains dependent on imports and on gas supply for thermal generation. In this matter, insufficient firm gas volumes have forced increased use of heavy fuel oil, raising generation costs. Finally, the compact calls for stronger financial transparency and accountability across both utilities.
- **SOMELEC (Mauritania):** The utility's performance is improving but remains financially constrained, as its techno-commercial yield rose to 77.47% in 2023 from 62% in 2019, supported by efforts to improve billing and collection. However, losses are still high, and other factors influence such as ageing distribution infrastructure, collection challenges, and heavy dependence on imported fossil fuels, preventing full recovery of operating costs. Therefore, in order to restore the utility's financial viability by 2030, the Compact prioritizes audited financial reporting, clearer cost transparency, smart metering, operational efficiency, and a shift toward gas and renewables.
- **LEC (Liberia):** Between 2021 and 2023, LEC doubled its customer base to 282,505 users while sharply reducing commercial losses, which fell from 47.7% to 31.4% over the period and reached roughly 27.4-27.5% in 2024. Despite this progress, the utility's combined technical, commercial, and collection losses remain high at 45.4%, while service reliability remains weak, with load shedding estimated at about five hours per day. On the financial side, LEC recorded an operating loss of approximately USD 18 million in FY2023 stemming from unpaid public-sector bills, electricity theft, costly generation, and tariffs set below cost recovery. Therefore, the compact focuses on cost-reflective tariff adjustments, prepaid metering, loss reduction, stronger collections, and lower-cost renewable generation, in order to bring operational cost recovery by 2028.
- **EDSA / EGTC (Sierra Leone):** According to the compact, EDSA's weak technical and financial performance is one of Sierra Leone's main power-sector constraints. In this sense, the utility faces very high commercial and technical losses, reported at over 50%

in 2024, with EDSA earning revenue on only around four out of every ten units of electricity purchased, contributing to rising arrears, heavy government subsidies, and limited financial viability. In order to address these matters, the compact prioritizes a private Operation, Maintenance and Management concession for EDSA, alongside improved metering, customer mapping, loss-reduction teams, a sector-wide collections account, tariff reform, and stronger revenue collection. On the other hand, for EGTC, the compact notes the need to improve its performance as the state generation and transmission company, particularly by reviewing the PPA between EDSA and EGTC and strengthening EGTC's ability to manage government-owned generation assets reliably.

- **NAWEC (The Gambia):** The utility's performance remains one of the main risks to the sustainability of The Gambia's electricity sector. In this regard, NAWEC faces high system losses of around 21.5%, driven by technical and commercial losses, while ageing generation assets and overloaded rural networks affect service quality and reliability. Regarding its finances, persistent deficits, a negative net income position in 2024, arrears to power suppliers, exposure to fuel and exchange-rate shocks, and incomplete cost recovery despite tariff reforms are reported, for an overall fragile status. Therefore, The Compact prioritizes loss reduction, improved metering, anti-theft regulations, digital utility modernization, cost-cutting measures, arrears settlement, and stronger tariff pass-through mechanisms to move NAWEC toward financial viability.
- **NIGELEC (Niger):** NIGELEC's performance has improved in terms of customer growth, with its client base rising from 210,000 in 2010 to 765,640 in 2023, but the Compact highlights persistent financial and operational vulnerabilities. Since 2022, the utility has not been able to fully recover its operating costs, partly due to higher diesel costs, tariff non-adjustment, and the suspension of Nigerian electricity supply, requiring government compensation of around XOF 15 billion (approx. USD 25 million) over 2022-2023. Technical performance also remains constrained by network losses, with transmission losses of 10.27% and distribution losses of 11% in 2023. Restoring NIGELEC's financial viability is therefore presented as essential for improving reliability and attracting private investment.
- **EDG (Guinea):** Technically, the utility suffers from high technical and commercial losses, estimated at 30% in 2024, alongside weak reliability indicators, including SAIFI of 47, SAIDI of 99 hours, and 16 general system trips. Financially, EDG remains structurally fragile because electricity tariffs are well below the cost of service, with an average tariff of around USD 0.08–0.10/kWh, as opposed to an average production cost of about USD 0.22/kWh, meaning tariffs cover only 36-45% of costs. In this line, this has created a persistent deficit, dependence on government subsidies, and arrears to independent power producers. Therefore, the Compact prioritizes loss reduction, prepaid and feeder metering, tariff adjustments, financial audits, digitalization, and a performance-based concession framework to restore EDG's operational and financial viability by 2030.

Cost Recovery and Tariff Reform

Cost recovery remains politically difficult but technically unavoidable. Several compacts recognize that tariffs often do not cover the cost of supply, especially when fuel prices, exchange rates, imports, emergency generation or high losses are not passed through transparently. Without a credible tariff path, utilities rely on subsidies and arrears, which then weaken payment discipline and reduce investor confidence.

The emerging reform model combines tariff reviews with social protection. Ghana refers to the Multi-Year Tariff Order, quarterly adjustments and targeted support for vulnerable households. Sierra Leone plans a Multi-Year Tariff Order and a subsidy trajectory. The Gambia proposes a cost-recovery model, pass-through mechanisms and settlement of arrears to IPPs and import

suppliers. Guinea and Benin refer to gradual tariff revision with protection for vulnerable households, while Togo links financial viability to CEET reform and broader sector restructuring. This reflects a shift toward targeted affordability instruments. Even so, none of the twelve countries currently applies a fully cost-reflective tariff: the utility profiles show cost-recovery levels ranging from about 36-45% of supply costs in Guinea to roughly 72% in Senegal, with most systems still relying on subsidies or arrears to cover the gap.

Transparent Financial Management

Transparent financial management is becoming a core reform area because investors and development partners need to understand where sector revenues go. Ghana's compact emphasizes audits, the Cash Waterfall Mechanism, a single collections approach and quarterly tariff adjustments. Sierra Leone proposes a sector-wide collections account administered by an independent agent, regular utility audits and monthly online publications of collection account flows. The Gambia notes that NAWEC accounts are audited but that timeliness must improve.

Other compacts focus on commercial modernization. Benin and Ghana prioritize smart meters, digital payments and distribution control systems. Liberia links LEC financial viability to loss reduction, customer growth and creditworthiness. Togo emphasizes CEET reform and the strengthening of the CEB, while Nigeria's challenge lies in improving DisCos performance, payment discipline and market liquidity. Across the region, financial transparency is not a back-office reform; it is a condition for bankable PPAs, regional trade and credible tariff setting.

Therefore, a practical monitoring framework should track audited statements, collection rates, system losses, government arrears, IPP arrears, subsidy payments, service quality and progress on performance improvement plans. These indicators are more useful than headline capacity targets for assessing whether the sector is becoming financially sustainable.

COMPARATIVE ANALYSIS OF FINANCING NEEDS

The financing requirements presented in the compacts are large and uneven and are summarized in Table 6.

Table 6. Investment amounts

Country	Total investment (USD Billion)	Public / donors share	Private sector share	Most capital-intensive segment
Benin	USD 2.75 billion	60.30%	39.70%	Distribution / Production
Côte d'Ivoire	USD 15.02 billion total needs for 2024-2030; USD 6.56 billion still to be mobilized	70.4% of the remaining financing to mobilize	29.6% of the remaining financing to mobilize	Production
The Gambia	USD 0.55 billion	55%	45%	Generation
Ghana	USD 4.4 billion	40.7%	59.3%	Generation
Guinea	USD 8.9 billion	15%	85%	Production
Liberia	USD 1.29 billion	89.1%	10.9%	Generation
Mauritania	USD 3.07 billion total investment needs; USD 2.45 billion	49.9%	50.1%	Production

Country	Total investment (USD Billion)	Public / donors share	Private sector share	Most capital-intensive segment
	remaining to be financed			
Niger	USD 1.19 billion	56%	44%	Grid densification and extension for electricity access
Nigeria	USD 32.7 billion	52.6%	47.4%	Off-grid
Senegal	USD 6.26 billion	63%	37%	Generation
Sierra Leone	USD 2.24 billion	37.2%	62.80%	General
Togo	USD 3.00 billion	44%	56%	Generation

Source: National Energy Compact (Mission 300).

Taken together, the twelve countries identify more than USD 80 billion in investment needs, led by Nigeria, Côte d'Ivoire, Guinea and Senegal. On the other hand, the sum of the remaining eight countries represents a smaller share of aggregate financing needs, though their individual challenges are significant relative to the size of their economies and power systems, revealing important structural asymmetries across the group.

In this regard, Nigeria's investment target is the largest in absolute terms, but it is set against an economy with a GDP of over USD 470 billion and a more consolidated power sector. By contrast, Liberia has a requirement of USD 1.29 billion, although modest in comparative terms, it has to be mobilized in an economy of around USD 4 billion and in one of the region's most fragile utility environments, making it one of the most demanding financing challenges relative to national economic capacity. Similarly, The Gambia's USD 0.55 billion target and Niger's USD 1.19 billion, both small in absolute terms, represent financing ratios relative to GDP that are structurally more challenging than those of larger economies in the group.

The segments with the most intense capital requirements in each country also point to where the main system bottleneck lies, which varies across the region. In Côte d'Ivoire, Ghana, Guinea, Liberia, Mauritania, Senegal, Sierra Leone and Togo, the biggest financing pressure is generation, especially as they seek to scale up renewable capacity and battery storage, needing long-term project finance, credible public counterparts, competitive procurement and mechanisms for risk sharing that promote investors' confidence. On the other hand, Nigeria is different, as its largest financing need is off-grid electrification, which reflects the scale of unelectrified demand and the importance of decentralized solutions in reaching households and businesses that the grid is unlikely to serve quickly, calling for financing model built around results-based facilities, aggregated project pipelines and private solar developers. In Niger, the pressure is concentrated on grid densification and access extension, where the financing challenge concerns connecting more people to the system, requiring instruments suited to last-mile infrastructure and affordability constraints. Conversely, Benin sits across two priorities, distribution and generation, reflecting a transitional system where supply adequacy and delivery infrastructure require simultaneous investment.

STRUCTURAL GAPS AND IMPLEMENTATION CHALLENGES

The twelve West African Energy Compacts represent a major step toward a more coordinated regional energy transition. Together, they set out an ambitious investment and reform agenda that combines universal or near-universal electricity access, a rapid increase in renewable generation, stronger regional power trade, expanded clean cooking access, and deeper private sector participation.

The analysis across the five pillars points to a number of structural challenges that will influence how far these ambitions are realized in practice.

Financing needs are large across the region, but the scale and nature of the challenge vary significantly by country. Larger markets such as Nigeria, Côte d'Ivoire, Ghana and Senegal are in a stronger position to take on large investment programs, given the size of their economies and the relative depth of their power sectors. Even there, however, investors will still look closely at off-taker risk, payment discipline and overall sector liquidity. On the other hand, the challenge is different in smaller or more fragile systems such as Liberia, The Gambia, Niger and Sierra Leone, where private capital is unlikely to come in at scale without more concessional finance, guarantees, results-based support and well-prepared projects. This is why high private-sector financing targets in countries such as Guinea, Sierra Leone, Ghana and Togo should be read as reform-dependent ambitions, rather than proof that the market is already ready to absorb that level of investment.

Utility reform remains one of the central conditions for implementation. Across the compacts, many utilities face high technical and commercial losses, weak collections, arrears, limited cost recovery and constrained capacity to serve as credible counterparts, being particularly visible in utilities such as LEC in Liberia, EDSA in Sierra Leone, EDG in Guinea and Nigerian distribution companies, where losses and payment risks directly affect the bankability of new investments. Even in more mature systems such as Ghana, Senegal and Côte d'Ivoire, utility financial discipline, payment-chain management and tariff adequacy remain essential to sustain investment. Without stronger utility balance sheets, transparent financial reporting and credible payment mechanisms, private generation, mini-grid development and regional power trade will remain more expensive and more limited than the compacts assume.

Regional integration is progressing, but commercial rules still lag behind infrastructure ambitions. West Africa already has important interconnection assets through CLSG, OMVG, OMVS and WAPP corridors, as well as expansion plans, and several compacts treat regional power trade as a core part of least-cost supply planning. Yet, the full value of this infrastructure will depend on the commercial architecture around it. Harmonized transmission tariffs, clear wheeling rules, payment security and enforceable market protocols are still needed to prevent cross-border trade from being weakened by stacked transit charges and bilateral uncertainty. The planned WAPP day-ahead market is therefore important, but it will only work if regional regulation and utility payment discipline advance in parallel.

Clean cooking is formally part of the access agenda, but it remains underdeveloped compared with electricity. Most compacts include clean cooking targets, marking an important shift. However, the agenda is still less mature in terms of financing, delivery mechanisms and institutional ownership. Scaling it will require more than technology distribution, with quality standards, testing and certification systems, consumer finance, fuel supply chains, targeted subsidies and stronger coordination between energy, health, environment and gender institutions as measures to be put in place for its development.

Regulatory credibility and delivery capacity are also relevant bottlenecks. Effective delivery requires regulators able to approve tariffs transparently, procurement agencies able to manage competitive tenders, transaction advisers able to structure bankable projects, and public

institutions able to enforce contracts over time, with signals in the Compacts of constraints in capacity to apply it consistently, which is especially important for securing private investment. Technical assistance and capacity-building support (including from AfDB's project preparation facilities) are therefore core enablers of the compact investment agenda.

CONCLUSION

Beyond the structural challenges discussed above, the twelve compacts point to four broad trends shaping West Africa's energy transition:

First, the region is moving towards more diversified and renewable-based power systems, but countries are not all following the same path. To illustrate, Guinea, Liberia and Sierra Leone already depend significantly on hydropower, so adding solar, storage, imports and dispatchable reserve will contribute to their priority of reducing exposure to drought variability. On the other hand, Benin, The Gambia, Niger, Mauritania and Togo start from more constrained systems, with higher dependence on imports, thermal generation, fragmented networks or limited available capacity, whereby solar expansion is a way to improve supply security and reduce costs. Notably, in larger systems such as Nigeria, Ghana, Côte d'Ivoire and Senegal, the issue regards improving dispatch, reducing losses, managing procurement risks and ensuring that the installed capacity translates into reliable electricity for consumers.

Second, the compacts show very different levels of market maturity, and this will affect the pace and cost at what private capital can be mobilized. In this sense, Ghana, Côte d'Ivoire, Senegal and Nigeria have larger power markets, more experience with IPPs and private sector participation, and more developed regulatory frameworks. Even so, they still face important risks around payment discipline, dispatch, and the creditworthiness of off-takers. On the other hand, countries such as Liberia, Sierra Leone, The Gambia, Niger and Guinea are operating in smaller or more fragile systems, where moving from a policy commitment to a bankable project remains more difficult. In these markets, investment will also depend on sustained support for regulatory design, project preparation, contract structuring and utility management.

Third, utility reform remains the foundation of the compact agenda. As it has been detailed, high losses, weak collections, arrears, below-cost tariffs and fragile off-taker balance sheets continue to constrain investment, which are especially acute in utilities such as LEC in Liberia, EDSA in Sierra Leone, EDG in Guinea and several Nigerian DisCos. However, Ghana, Senegal and Côte d'Ivoire, which are considered stronger systems, still need to maintain payment-chain discipline, improve cost recovery and strengthen transparency. Therefore, financially viable utilities will be crucial to attract private generation, scale mini-grids, expand regional trade or sustain new connections.

Fourth, regional integration is becoming part of national energy planning rather than a separate regional agenda. WAPP corridors, CLSG, OMVG, OMVS, the North Core and the Coastal/Median Backbone are increasingly seen as tools for least-cost supply, system balancing and renewable integration. This matters for import-dependent countries such as Liberia, Sierra Leone, The Gambia, Benin, Niger and Togo, but also for countries with export or balancing potential such as Côte d'Ivoire, Ghana, Guinea and Senegal. In this respect, the challenge is that commercial rules need to move forward in order to keep up with the markets' needs. The planned WAPP day-ahead market, harmonized transmission tariffs, wheeling rules, settlement systems and payment discipline will be essential if interconnectors are to move from strategic assets to regularly used trading platforms.

Taken together, these trends point to a region at a genuine inflection point in its energy transition, whereby the success of the compacts will depend on investment volumes, as well as the ability

to align policy, institutional capacity and financing instruments with the very different starting points and constraints of each country.

In this context, the African Development Bank has an important role to play beyond financing individual projects. As co-convenor of Mission 300 alongside the World Bank, the AfDB can help countries move from compact commitments to investment programs that are properly sequenced and implementable, by combining sovereign lending, private-sector operations, technical assistance, project preparation, guarantees and regional coordination. Its role will be especially important in helping governments match the right instrument to the right bottleneck: project finance for utility-scale generation, concessional finance for grid rehabilitation, results-based finance for off-grid access, risk mitigation for private investors, and institutional support for utilities and regulators. Ultimately, the success of the West African compacts will depend on whether countries can turn those targets into bankable and context-specific reform and investment pathways.



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