Enabling Regional Integration In Central Africa

ENERGY AS A CATALYST FOR SHARED PROSPERITY

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Content

Acknowledgement....4
List of Abbreviations and Acronyms....5
Figures....6
List of Tables....7
Foreword....8
Executive Summary....9
Introduction....10
1.1. Context and Rationale....11
1.2. Energy and Regional Integration in the African Context....11
1.3. Institutional Context....12
1.4. Research Gap....12
1.5. Objectives and Scope....13
II. Advancing Functional Integration in Central Africa....14
2.1. Theoretical Foundations....15
2.1.1. Review of traditional models (Viner-Balassa)....15
2.1.2. Limitations in the African context....15
2.1.3. Emergence of the New Regionalism Approach (NRA) as a multidimensional framework..16
2.2. The Architecture of African Integration: Between Continental Ambitions and Regional Realities....16
2.2.1. The AfCFTA....16
2.2.2 Regional Integration Performance in Comparative Perspective....17
2.2.3. Comparative performance of ECOWAS, EAC, ECCAS and CEMAC....17
2.2.4. Central Africa's Position in the Continental Integration Agenda....18
2.2.5. Implications of Integration at Multiple Speeds....18
2.3. The Anatomy of Fragmentation in Central Africa....19
2.3.1. The Resource Curse and Its Political Economy....19
2.3.2. Institutional Weaknesses....21
2.3.3. Infrastructure Gaps....22
III. Reimagining Regional Integration through the Energy Transition....24
3.1. Data and Methodology....25
3.2. Central Africa's Energy Paradox: A Structural Diagnosis....26
3.3. Energy Integration as a Driver of Regional Cohesion....28
3.4. Comparative Lessons from the West African Power Pool (WAPP)....31
3.5. Operationalizing the Central African Power Pool (CAPP)....32
3.6. Financing the Energy-Integration Nexus....35
IV. A Phased Roadmap for Functional Regional Integration in Central Africa....38
V. Conclusion: Reimagining Economic Transformation in Central Africa through Energy as an Enabler..41
Appendices....42
References....46

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List of Abbreviations and Acronyms

AfCFTA	African Continental Free Trade Area
AfDB	African Development Bank
ARII	Africa Regional Integration Index
BEAC	Bank of Central African States
CAPP	Central African Power Pool
CAR	Central African Republic
CEMAC	Economic and Monetary Community of Central Africa
CET	Common External Tariff
COMESA	Common Market for Eastern and Southern Africa
DRC	Democratic Republic of Congo
EAC	East African Community
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
GDP	Gross Domestic Product
ICT	Information and Communication Technology
IGAD	Intergovernmental Authority on Development
IMF	International Monetary Fund
IRENA	International Renewable Energy Agency
ISS	Institute for Security Studies
LPA	Lagos Plan of Action
NEPAD	New Partnership for Africa's Development

NRA	New Regionalism Approach
OECD	Organization for Economic Co-operation and Development
PEAC	Central African Power Pool
PIDA	Programme for Infrastructure Development in Africa
REC	Regional Economic Community
SADC	Southern African Development Community
SMEs	Small and Medium-sized Enterprises
UMA	Arab Maghreb Union
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
WAPP	West African Power Pool
WTO	World Trade Organization

Figures

Figure 1: Natural Resource Rents as Share of Government Revenue....20

Figure 2: Overlapping regional initiatives in Africa....21

Figure 3: Central Africa's Infrastructure and Trade Gap (Comparative)....22

Figure 4: Disparities in electricity access across ECCAS countries....26

Figure 5: Installed electricity capacity vs estimated renewable energy potential across ECCAS countries..27

Figure 6: Energy rich vs energy deficit in Central Africa....27

Figure 7: Potential Cross-Border Electricity Interconnection Corridors in Central Africa....28

Figure 8: Correlation between electricity access and commercial integration....29

Figure 9: Renewable Energy Consumption and Commercial Integration in Central Africa....30

Figure 10: Performance Gap Between WAPP and ECCAS Power Pools....31

Figure 11: Priority Electricity Transmission Corridors for CAPP....33

Figure 12: Phased Development of the Central African Electricity Market....34

Figure 13: Institutional Architecture for the Central African Electricity Market....34

Figure 14: Energy Integration and Financing Ecosystem....35

Figure 15: Energy Integration and Climate Finance Alignment....36

Figure 16: Correlation between urban access to electricity and trade integration....44

Figure 17:Correlation between rural access to electricity and trade integration....44

List of Tables

Table 1: Indicative Dashboard of Regional Integration Performance across Selected RECs....42

Table 2: Overlapping membership in ECCAS countries....43

Table 3: Policy Action Matrix for Functional Regional Integration in Central Africa....45

Foreword

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Central Africa faces a defining moment in its regional integration and development journey. Despite abundant natural resources, a young population, and a strategic geographic position linking major African sub-regions, the region remains among the least integrated on the continent. In the context of the African Continental Free Trade Area (AfCFTA) and a rapidly evolving global economy, the effectiveness of regional integration will increasingly determine Central Africa's capacity to industrialize, attract investment, and strengthen economic resilience.

This flagship report provides a timely and rigorous assessment of the structural factors that continue to constrain integration outcomes in Central Africa. While the region is characterized by a dense network of regional institutions, agreements, and political commitments, these have not yet translated into deep economic integration, dynamic regional value chains, or sustained improvements in competitiveness. The central challenge, as this report demonstrates, lies in the gap between formal integration frameworks and functional implementation on the ground.

The analysis highlights fragmentation as a multidimensional phenomenon rooted in political economy constraints, institutional duplication, infrastructure deficits, and limited enforcement capacity. Addressing these constraints requires a strategic reorientation of the integration agenda towards practical results-oriented cooperation. In this context, the report makes a compelling case for prioritizing energy integration as a foundational pillar of regional development. Reliable, affordable, and interconnected electricity systems are essential to reducing production costs, enabling industrial upgrading, and supporting cross-border trade under the AfCFTA.

Importantly, this report underscores that regional integration is a long-term process that demands sustained political commitment, institutional reform, and effective coordination among national governments, regional bodies, development partners, and the private sector. Lessons from other African regions demonstrate that progress is achievable through phased implementation, clear prioritization, and measurable outcomes.

It is my expectation that this report will serve as a strategic reference for policymakers and stakeholders engaged in shaping Central Africa's integration agenda. By translating ambition into action, through functional infrastructure, empowered institutions, and coordinated policies Central Africa can reposition itself as an active participant in continental integration, advance green industrialization, and strengthen its economic sovereignty for the decades ahead.

Executive Summary

Central Africa stands at a critical juncture in its regional integration and development trajectory. While the African Continental Free Trade Area (AfCFTA) offers unprecedented opportunities to expand markets, foster industrialization, and strengthen economic resilience, Central Africa remains one of the least integrated regions on the continent. Despite multiple overlapping regional institutions and treaty frameworks (notably ECCAS and CEMAC), intra-regional trade remains below 2 percent of total exports, infrastructure connectivity is weak, and productive value chains are largely absent. The central challenge is not a lack of ambition, but a persistent gap between formal integration commitments and functional economic outcomes.

This flagship report argues that Central Africa must shift from formal, treaty-based integration to functional integration, an approach that prioritizes tangible reductions in transaction costs, reliable infrastructure, and institutional delivery over legal harmonization alone. Fragmentation in the region is multidimensional, encompassing political economy constraints linked to resource dependence, institutional duplication between ECCAS and CEMAC, infrastructure deficits, and weak enforcement of regional commitments. These factors mutually reinforce a low-integration equilibrium that limits competitiveness, investment, and diversification.

The report identifies energy integration as a strategic entry point for transformation. Reliable and affordable electricity is a binding constraint on trade competitiveness, industrial upgrading, and regional value chain development. Regional electricity markets, anchored in cross-border transmission, harmonized regulation, and coordinated planning can lower production costs, improve system reliability, and enable energy-intensive activities under the AfCFTA. This would enable energy-intensive industrial activities and strengthen competitiveness under the AfCFTA framework. Comparative experience, notably from West Africa, demonstrates that such markets are achievable through phased implementation, strong institutions, and sustained political commitment.

To unlock these gains, the report proposes actionable policy pathways centered on targeted sectoral integration, accelerated CEMAC-ECCAS convergence, operationalization of the Central African Power Pool, and scaled use of blended and climate finance for regional infrastructure. By anchoring integration in measurable outcomes and strategic investments, Central Africa can reposition itself from the margins of African integration to a competitive regional platform for green industrialization, economic resilience, and greater strategic autonomy within the AfCFTA.

I.

Introduction

1.1. Context and Rationale

Central Africa possesses one of the largest untapped energy potentials in the world, particularly in hydropower resources concentrated in the Congo Basin. Yet the region remains the least electrified sub-region in Africa, with more than half of its population lacking access to reliable electricity. This paradox reflects deeper structural challenges in infrastructure development, regional coordination, and economic integration across the Economic Community of Central African States (ECCAS).

Infrastructure connectivity has increasingly been recognized as a central driver of economic cooperation and regional integration across Africa. Investments in transport, energy, communication networks, and information technologies facilitate the movement of goods and people, support productive activities, and strengthen cross-border trade within regional economic communities (UNECA, 2010; Ejemeyovwi et al., 2018). In this context, reliable and interconnected infrastructure systems are widely considered essential foundations for economic transformation and regional development. As emphasized by the African Development Bank, investments in regional infrastructure constitute a critical driver of economic integration and development across the continent (AfDB, 2015).

Central Africa possesses considerable natural resource endowments, particularly in energy. The region holds the majority of Africa's hydroelectric potential, largely concentrated in the Congo Basin, one of the world's most important hydrological systems. Despite this considerable resource base, access to electricity remains extremely limited across the countries of the Economic Community of Central African States (ECCAS). Electrification increased only modestly from 29 percent in 1991 to about 34.2 percent in 2023, far below the African average of 57 percent (UNIDO, 2023; AfDB, 2024; ISS African Futures and Innovation, 2025).

This situation illustrates a persistent regional paradox: a region endowed with abundant hydropower resources continues to face chronic electricity shortages and widespread energy poverty. Approximately 105 million people in Central Africa, around 75 million in rural areas and 30 million in urban centres lack access to electricity, representing nearly 60 percent of the population (University of Delaware & AfDB, 2024). Per capita electricity consumption remains far below that of other African regions, reflecting structural inequalities in infrastructure provision and energy distribution (Ranganathan & Foster, 2011). Urban electricity access declined from 63 percent in 1991 to 59.6 percent in 2023, remaining well below the African average of 80.8 percent (Institute for Security Studies, 2024). These deficits constrain productivity, limit industrial development, and reduce opportunities for regional value chain expansion.

1.2. Energy and Regional Integration in the African Context

Energy availability is closely linked to the prospects for regional economic cooperation and structural transformation. Electricity constitutes a fundamental productive input for economic activity and plays a central role in supporting industrialization, trade expansion, and infrastructure development. In terms of production, supply, and distribution, the energy sector can support sustainable development by delivering secure and environmentally friendly sources of energy while improving energy efficiency (OECD, 2007).

Reliable electricity systems also facilitate trade and transport connectivity across borders. Logistics networks, ports, industrial zones, and transport corridors depend heavily on stable electricity supply to operate effectively and connect national markets within regional economic communities. In regions where electricity supply remains limited or unreliable, production costs increase and economic competitiveness declines, constraining the development of regional markets.

Energy infrastructure is equally essential for digital transformation. Telecommunications networks, data services, and information systems require stable electricity supply to function effectively. However, infrastructure performance in Central Africa continues to lag behind other African regions, and ICT infrastructure remains underdeveloped with low access rates and high service costs. These constraints limit opportunities for innovation, digitalization, and the expansion of modern services across borders.

Energy is also critical for the development of regional value chains. Industrial production, agro-processing, and mineral transformation require reliable power supply to move beyond primary commodity exports toward higher value-added production. Yet Central African economies remain characterized by limited economic diversification and strong dependence on natural resources, restricting the emergence of integrated regional production systems. Strengthening energy infrastructure can therefore reduce production constraints and support the emergence of regional value chains capable of stimulating trade and employment.

1.3. Institutional Context

Regional integration efforts in Central Africa are institutionalized through the Economic Community of Central African States (ECCAS), created on October 18, 1983, to promote political, economic, and monetary cooperation among member states. ECCAS is recognized as one of the building blocks of the African integration architecture established under the African Economic Community framework (AEC, 1999). Its mandate includes promoting peace, security, and stability while advancing physical, economic, and monetary integration across the region.

These objectives align with broader continental development frameworks, including the vision articulated by the African Union in Agenda 2063 and the objectives of the African Continental Free Trade Area, which seek to deepen economic cooperation, expand intra-African trade, and accelerate structural transformation. Despite these ambitions, progress toward regional integration in Central Africa has remained uneven. Implementation of ECCAS protocols on free movement and market integration has been slow, and the region continues to face structural constraints related to weak infrastructure, limited economic diversification, and low levels of intra-regional trade (Wood, 2019; AfDB, 2007).

1.4. Research Gap

The persistence of energy poverty alongside vast hydropower potential reflects deeper structural and institutional challenges. Although several large hydropower sites exist in the Congo Basin, the transmission networks required to distribute electricity across national borders remain underdeveloped. Few countries possess extensive national grids, and regional grid interconnections remain limited. As a result, the development of a fully integrated regional electricity market remains constrained.

Regional initiatives such as the Central African Power Pool were established to promote electricity trade and the integration of national power systems. However, these initiatives have not yet achieved their full potential due to investment gaps, regulatory inconsistencies, limited harmonization of energy policies, and weak institutional coordination. ECCAS also faces institutional capacity constraints, partly because member states have not invested sufficiently in the organization's structures, limiting its ability to coordinate policy reforms or enforce commitments.

These challenges are reflected in broader patterns of regional economic fragmentation. Intra-African trade represented about 17 percent of the continent's total trade in 2023, significantly below levels observed in Europe and Asia (IMF, 2023; UNCTAD, 2023). Within Africa's regional economic communities, ECCAS records some of the lowest levels of intra-regional trade, reflecting infrastructure gaps, high transaction costs, and persistent non-tariff barriers (Afreximbank, 2024; Tralac, 2025). Consequently, most countries in the region continue to trade predominantly with

external partners, while regional value chains remain weakly developed.

1.5. Objectives and Scope

Against this background, **this report examines how energy sector development can serve as a strategic catalyst for deepening regional integration and fostering shared prosperity in Central Africa, with a particular focus on the Economic Community of Central African States (ECCAS).** It explores the paradox of abundant energy resources coexisting with limited electricity access and demonstrates how stronger regional cooperation in energy planning, infrastructure development, and governance can unlock development opportunities that have long remained underexploited.

The report responds to the growing recognition among African policymakers and development partners that meaningful regional integration depends on reliable, affordable, and interconnected energy systems. By placing energy at the centre of the regional integration agenda, it adopts a broader political economy perspective that highlights the role of infrastructure, institutions, and regional cooperation in shaping development outcomes.

Drawing on recent evidence, the report provides an updated assessment of energy access, infrastructure deficits, and regional integration trends across ECCAS. It analyses how institutional constraints, governance challenges, and limited economic diversification continue to hinder regional integration, while also examining lessons from other African regional economic communities that could inform reforms in Central Africa. Building on this analysis, the report identifies practical policy options to strengthen regional energy governance, mobilize investment, and align ECCAS energy initiatives with continental frameworks such as Agenda 2063 and the African Continental Free Trade Area (AfCFTA). In doing so, it offers an integrated evidence base to support more effective policy dialogue and regional cooperation on energy-led development.

II.

Advancing Functional Integration in Central Africa

Despite several decades of efforts, Central Africa is still the least integrated sub-region in Africa. Intra-ECCAS trade constitutes less than 2% of total trade, the lowest among the eight recognised Africa's Regional Economic Communities (RECs). There are very limited connectivity infrastructures, productive value chains exist in name only and the free movement of persons is difficult. The current performance gap between intentions, and actual results was not caused by accident. It represents a stark disconnect between the models of regional integration adopted and the underlying structure of Central African economies. This section examines why Central Africa has failed to integrate. It first outlines the theory behind regional integration and demonstrates why the classic trade-led model has failed in Africa; it then situates Central Africa in the overall setting of integration on the continent, drawing comparisons with the successful East African Community (EAC) and the Economic Community of West African States (ECOWAS). The core of this section diagnoses the dimensions that explain the integration deficit in Central Africa by detailing issues of structure (rentier economy and lack of diversification), institutions (CEMAC-ECCAS overlap and loss of sovereignty), transport (infrastructure, energy, ICT) and political economy (elite corruption and insecurity). The last sub-section takes away what Central Africa can learn from other regions.

2.1. Theoretical Foundations

2.1.1. Review of traditional models (Viner-Balassa)

Traditional models of regional integration, such as those proposed by Viner (1950) and Balassa (1967) emphasise economic efficiency through tariff liberalisation and market integration. Viner's (1950) customs union theory highlights trade creation, the increase in intra-regional trade and welfare gains from substituting high-cost domestic production with lower-cost imports from a partner, versus trade diversion, which refers to the shift from efficient global suppliers to less efficient regional ones. This causes welfare losses as countries shift from cheaper non-partner sources to higher cost partner imports (Andrei, 2012), assuming that removing internal barriers boosts welfare if partners are competitive. Balassa extended this into a linear progression: starting with a free trade area, advancing to a customs union, common market, economic union, and full monetary and fiscal integration, focusing primarily on goods markets and border measures like tariffs (Lewis Hudgins, 1972; Desiderio, 2026). In a free trade area, quantitative restrictions between participating countries are eliminated; however, each country retains its own tariffs for non-member countries. The creation of a customs union involves not only the elimination of discrimination in the movement of goods within the union, but also the harmonisation of tariffs in trade with non-member countries. A more advanced form of economic integration in a common market involves the removal of trade restrictions and the restriction on the movement of factors. An economic union, which differs from a common market, combines the removal of restrictions on the movement of goods and factors with a degree of harmonisation of national economic policies, thereby eliminating discrimination arising from policy disparities. Full economic integration, however, requires the unification of monetary, fiscal, social, and countercyclical policies, along with the establishment of a supranational authority whose decisions are binding on member states (Balassa, 1962; Desiderio, 2026).

2.1.2. Limitations in the African context

The models mentioned above face limitations in the African context due to structural economic fragility, a lack of production complementarity, and overreliance on commodity exports, which together slow progress in regional integration. While these models provided a useful analytical framework for post-war Europe, their application to Central Africa has been deeply problematic. Traditional integration models assume diversified productive structures, relatively high levels of industrialization, and the presence of firms capable of competing within expanded regional markets. In Central Africa, however, economies are narrowly

specialized, dominated by extractive sectors, and weakly connected both physically and institutionally. Most economies in the region export similar primary commodities and import manufactured goods from outside the region, leaving limited scope for trade creation within regional markets. In addition, traditional integration models place insufficient emphasis on infrastructure, institutions, and political economy. Trade liberalization alone cannot foster integration where physical connectivity is weak, transaction costs are high, and production systems lack complementarities. Empirical studies on African integration consistently show that tariff barriers are not the primary constraint to intra-African trade; rather, infrastructure deficits, non-tariff barriers, and weak logistics prevail (Portugal-Perez & Wilson, 2012; Limao & Venables, 2001). In Central Africa, the emphasis on formal trade liberalization has therefore produced largely symbolic integration outcomes. Customs unions exist on paper, but intra-regional trade remains negligible, reflecting the gap between theoretical assumptions and structural realities.

2.1.3. Emergence of the New Regionalism Approach (NRA) as a multidimensional framework

New regionalism refers to the wave of regional cooperation that emerged mainly from the late 1990s onward, shaped by major changes in the global political and economic system. Unlike earlier forms of regionalism, which were often state-centered, new regionalism developed in the context of globalization, the end of the Cold War, and growing economic interdependence. It is open, flexible, and closely connected to global markets, emphasizing openness rather than protectionism. Regional arrangements under new regionalism are therefore not seen as alternatives to globalization but as mechanisms for managing and adapting to it. Scholars, such as Hettne and Söderbaum (2000) conceptualize integration as a multidimensional process involving globalization as well as economic, political, social, and infrastructural dimensions. A key feature of new regionalism is precisely this multidimensional character: it extends beyond trade and economic integration to encompass political cooperation, security, social issues, culture, and identity (Estrada, 2025). Regionalism is no longer driven solely by states; non-state actors such as multinational corporations, regional business networks, civil society organizations, and social movements also play important roles in shaping regions. As a result, regions are understood not as fixed geographical entities but as socially constructed and constantly evolving through interaction, shared ideas, and collective interests.

Finally, new regionalism emphasizes diversity and context. Different regions follow different paths depending on their historical experiences, levels of development, and position in the global system. There is no single model of regionalism, such as the European Union, that can be universally applied. Instead, new regionalism highlights comparison, flexibility, and the importance of local conditions. This perspective allows for a deeper understanding of why regional projects vary in form, success, and purpose across the world, especially in Africa, Asia, and Latin America. Under this framework, integration is not an automatic consequence of trade liberalization but the outcome of deliberate region-building strategies. The NRA is particularly relevant for Central Africa because it highlights the importance of functional cooperation in infrastructure, energy, and security as precursors to market integration. It provides the conceptual foundation for rethinking integration through tangible projects rather than declarative treaties (Söderbaum, 2015, Estrada, 2025).

2.2. The Architecture of African Integration: Between Continental Ambitions and Regional Realities

2.2.1. The AfCFTA

Since trading began under the African Continental Free Trade Area (AfCFTA) on 1 January 2021, the Agreement has become the central instrument of Africa's market-integration agenda. Beyond a preferential tariff scheme, the AfCFTA is designed as a continental platform for rules, institutions,

and cooperation that can progressively make cross-border commerce more predictable for firms and more manageable for governments. Its ambition is structural: to expand effective market size for African producers while reducing the trade costs that fragment markets, tariffs, non-tariff measures, border delays, weak transport and logistics, and regulatory frictions. The AfCFTA's strategic logic is tightly linked to Africa's development constraints. Many economies are small and landlocked, and production structures are often concentrated in a narrow set of commodities. Under these conditions, domestic markets alone rarely provide the scale, demand stability, and input variety that firms need to invest in learning, quality upgrading, and diversification. A larger, rules-based continental market can help overcome this constraint by improving the credibility of market access, lowering trade costs, and supporting the emergence of regional value chains. The AfCFTA's expected outcomes extend beyond tariff reduction. Standard trade theory suggests that larger integrated markets can raise welfare by increasing competition, improving resource allocation, and lowering the cost of intermediate inputs. The AfCFTA also seeks to address "behind-the-border" constraints that shape investment decisions.

In this architecture, Regional Economic Communities (RECs) are explicitly treated as "building blocks". The AfCFTA relies on the acquis of existing RECs such as free trade areas, customs unions, mobility arrangements, and trade facilitation initiatives and aims to avoid disrupting regimes that already work. In practice, the building-blocks approach requires two implementation functions. First, RECs should align their internal instruments with AfCFTA commitments (tariff schedules, rules-of-origin administration, and non-tariff barrier disciplines). Second, RECs can serve as delivery platforms for joint border management, corridor governance, and peer-learning among customs, standards, and competition authorities. The policy tension is that RECs vary widely in depth and capacity. Some have relatively advanced compliance mechanisms and operational trade facilitation tools; others are "treaty-rich but implementation-poor", with overlapping memberships, limited supranational capacity, and weak financing. The AfCFTA therefore, inherits both the strengths and weaknesses of Africa's regional integration ecosystem. This is why the continental project will advance fastest where RECs and national agencies can translate commitments into operational practice, and why lagging regions require targeted convergence support.

2.2.2 Regional Integration Performance in Comparative Perspective

African integration is not uniform; it is a patchwork of relatively advanced sub-regions and lagging ones. Comparative evidence from the Africa Regional Integration Index (ARII) highlights substantial variation in overall performance and, importantly, in the 'hard' dimensions that matter for firms: infrastructure connectivity and productive integration. These differences shape how quickly AfCFTA preferences become usable, because utilisation depends on border performance and corridor reliability as much as on formal tariff liberalisation. (African Union et al., 2021).

Table A.1 reported in the Appendices provides an indicative dashboard comparing selected RECs on (i) ARII (2019) average scores and (ii) indicative intra-regional trade intensity from publicly available REC and international sources. Trade intensity figures are not strictly comparable across sources and years, but they communicate orders of magnitude and the relative position of Central Africa. The dashboard is intended as a managerial tool: it indicates where AfCFTA implementation is likely to advance fastest, and where targeted support is required to avoid divergence.

2.2.3. Comparative performance of ECOWAS, EAC, ECCAS and CEMAC

Three structural factors help explain why ECOWAS and the EAC tend to outperform ECCAS and CEMAC on practical integration outcomes: institutional depth, corridor economics, and the burden of insecurity and fragmentation. First, institutional depth and compliance mechanisms are stronger. The EAC has

advanced further along the integration sequence, moving from a free trade area to a customs union and common-market provisions supported by supranational bodies that coordinate implementation. ECOWAS has long-standing protocols on free movement and operationalised a Common External Tariff (CET), creating stronger incentives for harmonised trade regimes. These institutional features help transform political declarations into routine administrative practice. (IMF, 2016). Second, corridor economics matter. East and West Africa benefit from higher population density, larger internal markets, and major trade corridors linking ports to hinterlands. These features increase the returns to investments in one-stop border posts, transit guarantees, and customs digitization, creating a virtuous cycle in which policy reforms, trade volumes, and logistics investment reinforce each other. Third, insecurity and political fragmentation have been more binding in parts of Central Africa. Insecurity raises transport and insurance costs, encourages informal checkpoints, and weakens regional institutions' capacity to enforce decisions. Where member states face overlapping security crises, the policy bandwidth for implementing technical trade commitments, tariff schedules, standards reform, border agency coordination, declines. This does not make progress impossible, but it means that integration strategies in Central Africa must explicitly integrate security and corridor reliability into the trade agenda.

2.2.4. Central Africa's Position in the Continental Integration Agenda

Central Africa occupies a paradoxical position. On paper, the region hosts multiple integration institutions, ECCAS as a recognized REC and CEMAC as a monetary and customs union within ECCAS. In practice, integration outcomes remain among the weakest on the continent, particularly on productive integration and the real effectiveness of trade facilitation reforms. Trade patterns remain heavily shaped by commodities, limited manufacturing depth, and high transport and border costs. ARII results are consistent with this diagnosis. ECCAS performs relatively better on macroeconomic integration, reflecting the role of CEMAC's monetary union, yet underperforms on productive integration, which captures the extent of cross-border production complementarities and value-chain development. This combination suggests that monetary coordination alone is insufficient: integration benefits require corridors, competitive logistics, and regulatory cooperation that lowers the cost of doing business across borders. (African Union et al., 2021).

Trade intensity indicators reinforce the challenge. Intra-CEMAC trade remains extremely low, around 3.5% of total trade in 2019 reflecting both structural similarities in export baskets and the persistence of non-tariff barriers and corridor constraints. Paradoxically, this low baseline implies potentially high marginal gains from well-executed reforms: even modest improvements in corridor performance, border management, and standards cooperation can translate into meaningful increases in formal intra-regional exchange. (World Trade Organization, 2023). From a continental perspective, Central Africa's integration performance is strategically consequential. The region connects West, East, and Southern Africa and contains key 'missing links' in transcontinental corridors. Without reliable Central African corridors and harmonized border management, the AfCFTA's promise of continent-wide value chains will remain geographically constrained, with investment and trade clustering in already better-connected sub-regions.

2.2.5. Implications of Integration at Multiple Speeds

A multi-speed integration path is realistic, but it carries both opportunities and risks.

On the opportunity side, faster-moving regions can generate early commercial wins that demonstrate AfCFTA credibility. Pilot trading arrangements, corridor-level reforms, and mutual recognition in selected services can produce visible reductions in border delays and logistics costs. Such "proof of implementation" builds political momentum and creates learning-by-doing for customs administrations and firms. On the risk side,

multi-speed integration can widen disparities. Regions with stronger institutions and better infrastructure are more likely to capture early investment and value-chain relocation, while lagging regions may experience trade diversion without commensurate productivity gains. This is a salient risk for Central Africa, where low capacity and insecurity can delay the operationalisation of tariff schedules, rules-of-origin administration, and border reforms. The policy implication is a deliberate convergence agenda: targeted technical assistance, corridor investments, and adjustment financing that enable weaker regions to meet implementation benchmarks. Without convergence measures, the AfCFTA could reproduce, at a continental scale, the uneven integration patterns already observed among RECs, undermining both efficiency gains and political support.

2.3. The Anatomy of Fragmentation in Central Africa

Fragmentation in Central Africa refers to the breakdown of political, institutional, social, and economic coherence both within and between states in the region. It manifests weak governance, divided political authority, competing armed groups, uneven economic integration, and fragmented policy frameworks. In several Central African states, institutions remain weak, governance systems are centralized, and accountability mechanisms are limited. This enables fragmentation in decision-making, implementation, and service delivery. These dynamics undermine stability, erode state capacity, weaken policy implementation, and constrain inclusive development.

2.3.1. The Resource Curse and Its Political Economy

The natural resources curse, sometimes called the "paradox of plenty" refers to the paradox that countries endowed with raw materials tend to have lower GDP per capita and worse development outcomes than countries with fewer natural resources (Smith & Waldner, 2021). Central Africa is a region richly endowed with natural resources, from crude oil in Gabon and Equatorial Guinea to minerals and timber across the Democratic Republic of Congo (DRC) and the Central African Republic (CAR). Yet, this abundance has not translated into sustained economic development, political stability, or regional cooperation. Central African countries, despite being resource-rich and strategically placed countries, are facing a persistent governance crisis characterized by low institutional capacity, instability, high corruption, limited fiscal space, and enormous regional spillovers. Instead, the prevailing political economy is shaped by rentier dynamics that create incentives for elite capture and fragmentation, undermining cooperation and integration across states. For instance, several ECCAS member states like Gabon (28.80%), Equatorial Guinea (36.70%), the Republic of Congo (40.70%), and Angola (33.52%) derive a large share of government revenue from natural resource rents (Figure 1), making them quintessential rentier states. In such-dependent states where large portions of government revenue come from resource rents instead of taxes on citizens, political authority and economic incentives are shaped by resource rents. As a result, the way governments interact with their citizens and neighbouring countries is altered. In addition, citizens' ability to demand accountability and better governance is weakened.

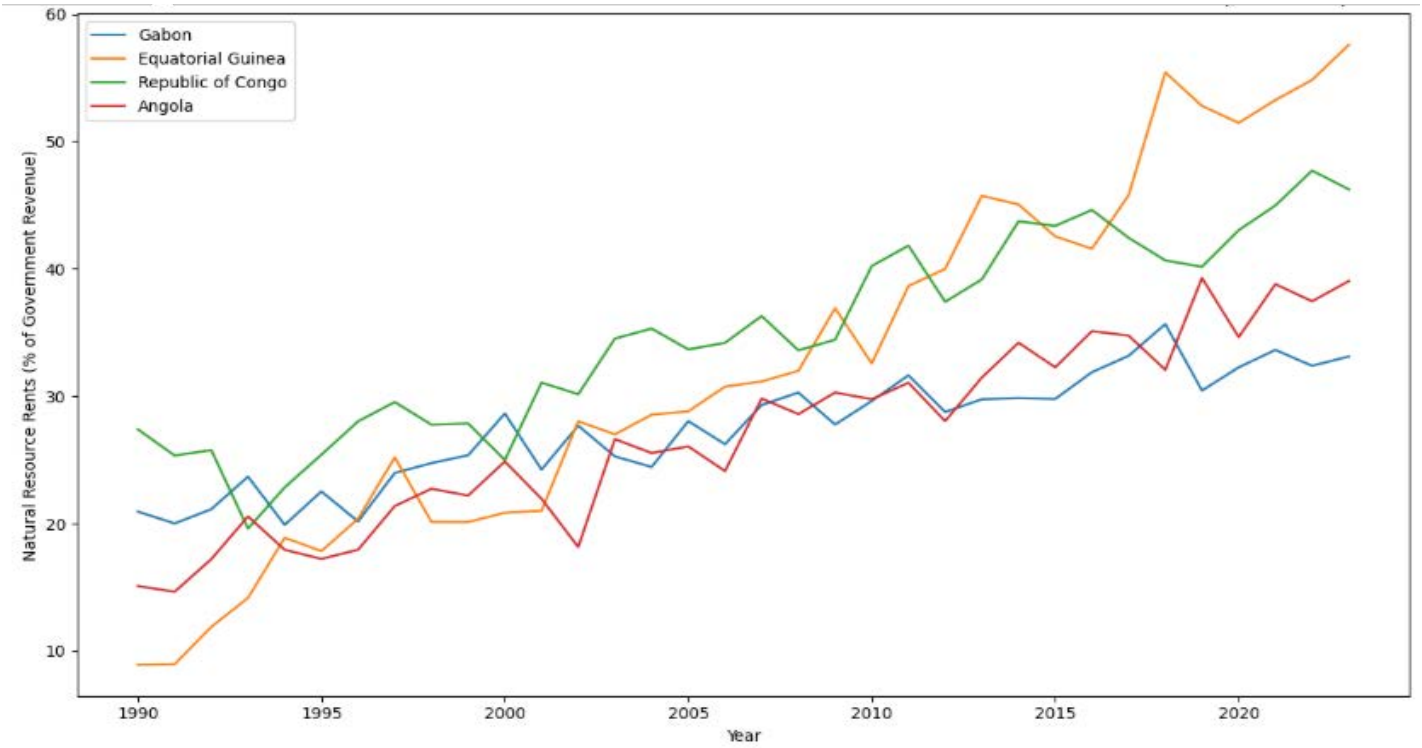


Figure 1: Natural Resource Rents as Share of Government Revenue

Source: Nkafu's Computation based on World Development Indicators (2025)

These dynamics have important implications for regional cooperation and reform efforts. This reflects rent-dependent states derive significant revenue from their own natural resources without deeper market integration at the regional level. Hence, there is limited economic pressure for most ECCAS states to integrate economically with neighbours, compared to states where trade and shared market access are central to growth.

Regarding reforms, there is less pressure for political reform domestically, including reforms that might make political processes more transparent or democratic, since leaders in rentier states can finance patronage networks and regime loyalty through resource rents. In fact, ECCAS's member countries strongly believe that national interest outweighs international interest, and coupled with the sacrosanct and cardinal concept of sovereignty in statehood and international relations, seek to protect their politics, economies, resources, and cultural ethno-national identities from non-nationals, thereby promoting policies of isolationism (Check, 2024). Civil society and citizens often have limited channels to influence these decisions, so national elites maintain control with little pressure to compromise for regional benefits. In this perspective, this reduces incentives to support regional reforms that require greater accountability, transparency, and integration across borders.

Despite abundant resources in Central Africa, rentier states show moderate levels of economic integration, illustrating barriers to translating natural resource wealth into collective benefits because leaders may be reluctant to deepen regional agreements. In fact, rentier states often have strong national revenue streams independent of regional cooperation. This can reduce the urgency to engage in coordinated regional policy reforms, such as tax harmonization, shared infrastructure investment, and common external tariffs. This is because these states believe they can finance development independently or have low incentives to compromise sovereignty for collective benefit.

2.3.2. Institutional Weaknesses

Efforts to unify CEMAC and ECCAS reflect broader ambitions for economic integration in Central Africa, but persistent sovereignty disputes, lack of arbitration mechanisms, and overlapping mandates have slowed progress. However, its effectiveness has often been limited by a lack of coordination, insufficient finances, and recurrent political instability in some member states. Despite longstanding regional integration efforts in Central Africa, institutional weaknesses, including overlapping mandates and a stalled merger between the Economic and Monetary Community of Central Africa (CEMAC) and the Economic Community of Central African States (ECCAS), continue to hinder effective cooperation, rationalization, and regional economic development. Both ECCAS and CEMAC were established to promote economic cooperation and integration. ECCAS has a broader agenda that includes political cooperation, security, and joint development initiatives, while CEMAC focuses on monetary union and economic policy coordination among Cameroon, CAR, Chad, Congo, Equatorial Guinea, and Gabon.

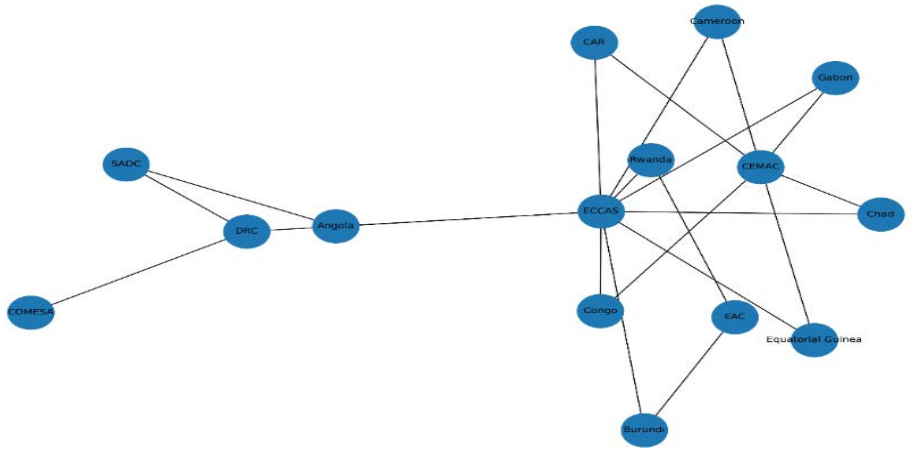


Figure 2: Overlapping regional initiatives in Africa

Source: Nkafu's analysis based on the article on Overlapping regionalism in Africa. Brookings Institution (Sy, 2015).

As reported in Figure 2 and Table A.2 from the Appendix, all CEMAC members are members of ECCAS as well, but ECCAS countries also have overlapping memberships. For example, Angola and DRC are also members of COMESA and SADC, while Burundi and Rwanda are part of EAC. It also depicts the multi-adhesion to overlapping regional initiatives in Africa. Dual membership creates a dilemma: countries pay levies to both CEMAC (1%) and ECCAS (0.4%) without clear corresponding benefits. CEMAC and ECCAS member countries are aware that duplication in memberships and mandates can reduce traction, as member countries do not attach their ambitions and loyalty to each organization in the same way (Byiers, 2017).

Overlapping regional bodies in Central Africa create uneven integration. They can be either a driver or a stumbling block, but so far, they have been the latter. Unproductive rivalry among member states has at times compromised concerted efforts. For instance, rivalries between Cameroon and Gabon over the location of the headquarters of the Bank of Central African States (BEAC), the appointment of its governor, and, more recently, the location of the CEMAC sub-regional stock exchange have posed a political threat to the stability and integration of the region (Kewir, 2015). Furthermore, political tensions and disagreements about leadership roles and governance structures continue to slow negotiations. For instance, disputes over leadership rotation have even contributed to Rwanda's withdrawal from ECCAS in 2025, complicating consensus-building. Hence, joint leadership is needed, but this would require Cameroon and Gabon to overcome rivalries, agree to joint positions on CEMAC projects and policies, increase the frequency of meetings between government officials, and ideally engage in joint projects (Kewir, 2015).

Although regional integration inherently entails the loss of some sovereignty to a transnational organization, ECCAS member countries often see this as a threat to sovereignty and have therefore elected to hold fast to their pre-association independence? Furthermore, their leaders prioritising national rent extraction and power consolidation, and regional cooperation becomes secondary. Hence, national interest versus regional agenda in Central Africa is marked by the persistence of sovereignty concerns, lack of political commitment, regional rivalry and an inability to move beyond national and short-term interest. This hinders member states from attaining the expected level of economic and monetary integration or implementing structural policies aimed at economic diversification (Laurens, 2008). Similarly, fiscal policy and public debt management are subject to regional surveillance under the multilateral convergence framework adopted in 1994 to prevent excessive fiscal deficits and ensure the sustainability of the peg (IMF, 2009). This Compliance remains weak due to the absence of sanctions and inconsistent enforcement, reflecting a lack of political will at the national level (IMF, 2017), thereby limiting fiscal convergence and deeper regional integration.

For more than 15 years, Central African leaders have discussed merging CEMAC and ECCAS into a single, unified regional economic community to streamline integration and reduce institutional duplication. Yet, persistent sovereignty disputes, the absence of arbitration mechanisms and overlapping mandates have slowed progress. Political tensions and disagreements about leadership roles and governance structures continue to slow negotiations. For instance, disputes over leadership rotation have even contributed to Rwanda's withdrawal from ECCAS in 2025, complicating consensus-building. Furthermore, the idea of merging CEMAC and ECCAS over a decade ago remains poorly defined with no clear roadmap for implementation or accountability mechanisms. In addition, harmonizing legal systems, governance structures, financial protocols, and institutional mandates across two deep-rooted organizations is complex because member states have diverging views.

2.3.3. Infrastructure Gaps

In the field of energy infrastructure, ECCAS activities aim to develop and consolidate a regional energy market, piloted by the Central African Power Pool (CAPP), recognized as an appropriate institutional framework to stimulate regional cooperation and materialize the political commitment of member countries to work together to exploit the enormous energy potential of the region. Studies are underway for the construction of electrical interconnections between the countries of the region and with the rest of Africa, from the Inga dam (DRC), a major factor in integration between the large regions of Africa. In addition, and to make better use of the region's water resources, a regional water policy was adopted in 2009.

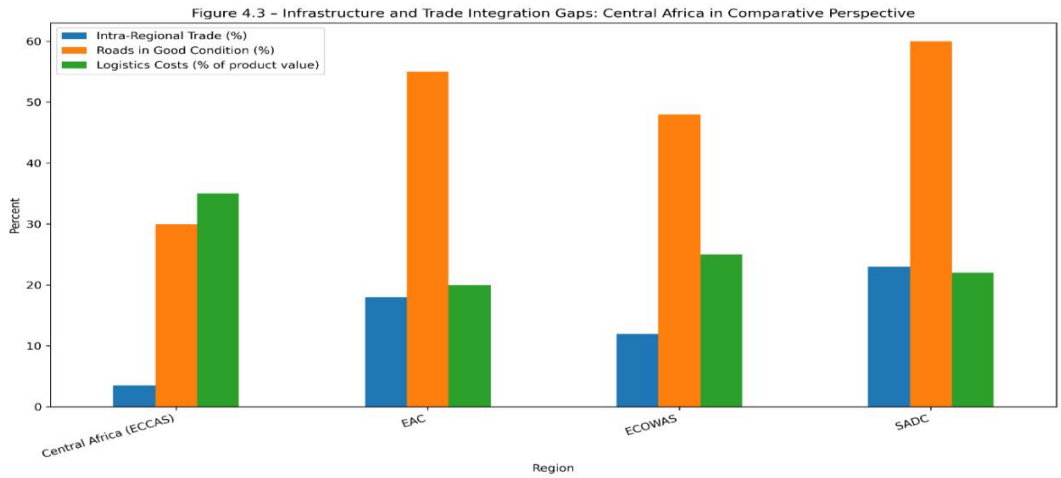


Figure 3: Central Africa's Infrastructure and Trade Gap (Comparative)

Source: Nkafu's compilation based on database from World Bank (2025) and report from ECCAS (2026).

Despite growing political will, the region continues to face deep-rooted structural barriers. In fact, today, less than 30% of regional roads are in good condition. In addition, intra-regional trade among ECCAS member States remains below 2% of total exports, far behind other African regional economic communities. Investment in transport and digital infrastructure can accelerate Central Africa's productive transformation. Up to now, infrastructure gaps have severely limited intra-regional trade, which accounted for only 1.6% of Central Africa's total exports in 2023 (OECD, 2025).

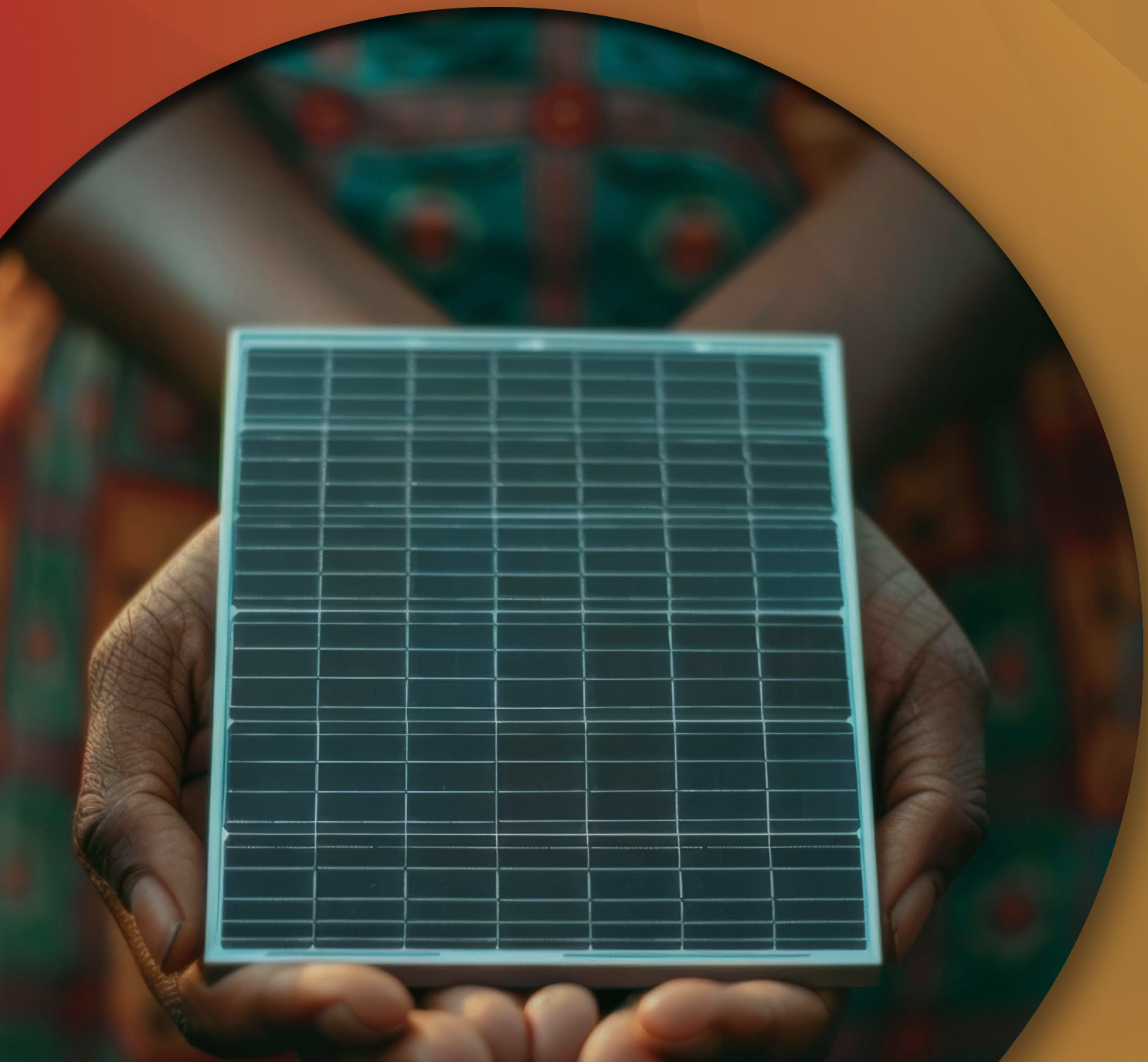
In fact, the region has many assets, in particular, significant resources including oil, mineral and mining (diamond, copper, iron, manganese, cobalt) some of which are world-class deposits. Proven oil reserves for the region are estimated at 31.3 billion barrels, or 28% of the continent's total reserves. Significant agricultural, forestry and hydraulic potential. The Congo Basin, estimated at 227 million hectares, is home to the second-largest forest and hydropower reserve in the world. It is therefore one of the lungs of the planet. The richness of its ecosystem: approximately 26,355 m3 of water per inhabitant per year, 27 million hectares of arable land, 135 million hectares of pasture and four ecological zones favourable to the development of agriculture and pastoral activities. Finally, a relatively large hydroelectric potential, i.e. 60% of the potential of the African continent (ECCAS, 2026). In addition, in Central Africa, the transport system is dominated mainly by roads, which account for between 80% and 90% of goods transport and nearly 99% of passenger transport. However, few of these roads are paved (4.1% of roads were paved out of a total length of 186,415 km in 2006) and the road density (3.5 km/100 km^2) is one of the lowest on the continent. For their part, the rail networks are disjointed and sparse, while river transport is, at best, the domain of small operators. Finally, transport costs are particularly high, due to the length of road corridors, unfavourable regulations, both official and unofficial market structures, uncertainties in goods transit times and non-tariff barriers.

When physical infrastructure is inadequate or absent, markets, especially in rural and remote regions, remain disconnected from economic centres, supply chains, and crossborder trade corridors. Poor transport links raise logistics costs and delay deliveries, while missing energy and digital links limit the flow of information, services, and investment. In fact, Moreover, over 80 percent of trade flows still transit through costly, insecure, and poorly maintained corridors, undermining the competitiveness of small and medium-sized enterprises and constraining economic diversification efforts. This physical isolation of markets is because some ECCAS member states lack direct access to major ports and depend on inadequate regional corridors, increasing transaction costs for importers and exporters.

Infrastructure deficits in transport, energy, and digital connectivity are among the most significant obstacles to deeper regional integration in Central Africa. Addressing these gaps is essential not only for facilitating smoother movement of goods and people but also for enabling productive transformation, inclusive economic growth, and meaningful participation in continental trade frameworks. Concerted regional planning, strategic investment, and strengthened institutional capacity are central to unlocking Central Africa's integration potential.

III.

Reimagining Regional Integration through the Energy Transition



For decades, regional integration efforts in Central Africa have delivered limited economic transformation despite numerous treaties, protocols, and institutional commitments. Trade-led integration strategies have struggled to generate strong inter and intra-regional economic linkages due to persistent structural constraints, including weak productive complementarities, limited infrastructure connectivity, and fragmented national markets. As a result, regional organizations such as the Economic Community of Central African States (ECCAS) and the Central African Economic and Monetary Community (CEMAC) have often remained closer to political frameworks than fully functioning economic spaces (UNECA, 2023 ; World Bank, 2024).

In this context, the global energy transition offers a unique opportunity to rethink the foundations of regional integration in Central Africa. Rather than focusing primarily on tariff reductions and regulatory convergence, a new integration paradigm can emerge from shared infrastructure, coordinated investments and functional interdependence among national economies. Electricity systems are particularly well suited to serve as a catalyst for this transformation because they require cross-border cooperation, long-term planning, and large-scale infrastructure development (IEA, 2023 ; AfDB, 2024). By connecting energy-rich and energy-deficit countries through regional electricity markets, the energy transition can transform structural asymmetries into opportunities for mutual benefit (IRENA, 2024).

This section examines how the energy transition can become a strategic driver of regional integration in Central Africa. Before analysing the region's structural energy paradox – characterised by the coexistence of abundant renewable resources and widespread electricity shortages – this section first presents the data and methodology used. Then, it examines how regional integration of the electricity sector can strengthen economic cohesion, draws lessons from successful integration experiences elsewhere on the continent, and explores how the Central African Power Pool (CAPP) could be implemented. Finally, it highlights the importance of mobilizing adequate funding to support the link between energy and integration.

3.1. Data and Methodology

This section combines descriptive statistics and exploratory empirical analysis to examine the relationship between energy systems and regional economic integration in Central Africa. The analysis focuses on the eleven member states of the Economic Community of Central African States (ECCAS): Angola, Burundi, Cameroon, Central African Republic, Chad, Democratic Republic of the Congo, Republic of the Congo, Equatorial Guinea, Gabon, Rwanda, and São Tomé and Príncipe.

The empirical analysis relies on several international datasets. Electricity access indicators are primarily drawn from the World Bank's World Development Indicators (WDI), while renewable energy statistics and electricity capacity data are compiled from the International Renewable Energy Agency (IRENA), the African Development Bank (AfDB), and regional energy reports produced by ECCAS and the Central African Power Pool (CAPP). Trade indicators and measures of commercial integration are derived from the World Bank and UN trade databases.

The analysis covers the most recent period for which comparable data are available, generally spanning the years 2010-2024, depending on data availability across countries. The figures presented in this section rely mainly on descriptive statistics, cross-country comparisons, and simple correlation analysis to highlight structural patterns linking electricity access, renewable energy development, and regional trade integration.

Importantly, the empirical relationships illustrated in the figures should not be interpreted as causal effects. Instead, they are used to identify stylized facts and structural patterns that inform the policy discussion on the potential role of regional electricity integration in supporting economic transformation and fostering deeper regional integration in Central Africa.

3.2. Central Africa's Energy Paradox: A Structural Diagnosis

Central Africa embodies one of the most striking energy paradoxes on the African continent. Despite possessing some of the world's most significant renewable energy resources, particularly hydroelectric potential concentrated in the Congo Basin the region continues to face widespread electricity shortages and some of the lowest electricity access rates globally. This contradiction between resource abundance and energy scarcity represents a major structural constraint on economic development and regional integration within ECCAS (World Bank, 2024; IRENA, 2024).

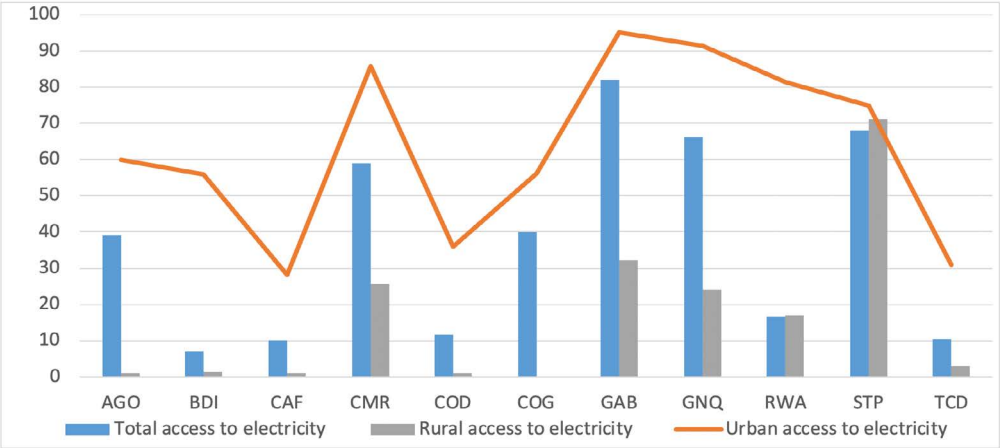


Figure 4: Disparities in electricity access across ECCAS countries

Source: Nkafu's Computation based on World Development Indicators (2025).

Electricity access across the region remains uneven and insufficient, with pronounced disparities both across countries and between urban and rural areas. As illustrated in Figure 4, a group of relatively better-performing countries, including Gabon, São Tomé and Príncipe, Equatorial Guinea and Cameroon record comparatively high electricity access rates in urban areas, often exceeding 80%. However, these national averages conceal significant spatial inequalities. Rural electrification remains substantially lower even in these countries, reflecting the concentration of energy infrastructure investments in major urban centers and the limited expansion of national grids toward peripheral regions.

The situation is considerably more severe in energy-deficit and fragile economies such as Burundi, the Central African Republic, Chad, and the Democratic Republic of the Congo. In these countries, overall electricity access remains below 25%, while rural access rates are often extremely low. Even urban electricity access remains incomplete, pointing to systemic weaknesses in generation capacity, transmission infrastructure, and distribution networks. These structural deficits constrain industrial development, limit access to essential services such as healthcare and education, and reinforce spatial inequalities and poverty traps, particularly in rural and landlocked areas (World Bank, 2025).

Paradoxically, these electricity shortages coexist with vast but largely underexploited renewable energy resources. Central Africa hosts some of the continent's most significant hydropower and solar energy potential. The Congo Basin alone represents one of the largest hydropower reserves in the world, with countries such as the Democratic Republic of the Congo, Cameroon, Gabon, and the Republic of the Congo possessing generation potential far exceeding their current domestic demand. Yet, as illustrated in Figure 5, only a small fraction of this renewable potential has been developed. Installed electricity capacity across ECCAS countries remains modest relative to available resources, reflecting financial constraints, institutional bottlenecks, and limited coordination in long-term energy planning.

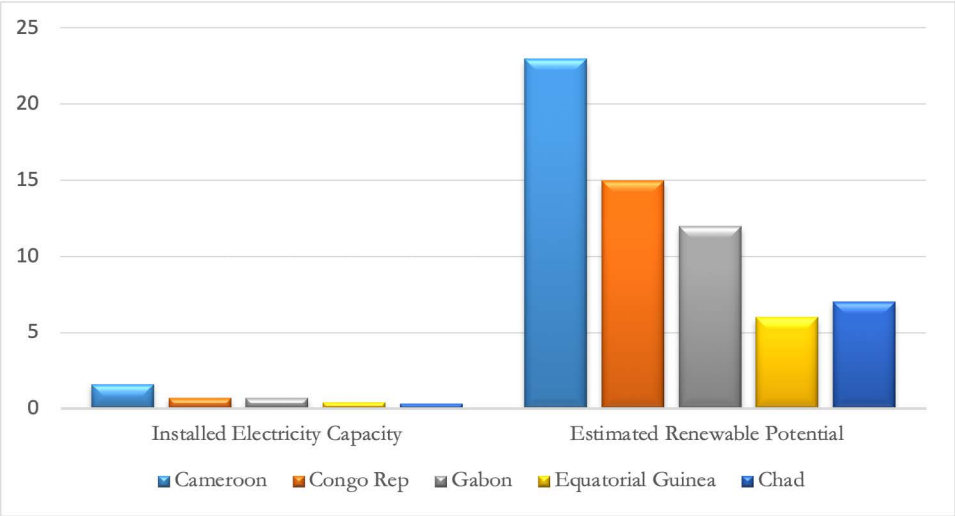


Figure 5: Installed electricity capacity vs estimated renewable energy potential across ECCAS countries

Source: Nkafu's compilation based on reports from IRENA (2024), AfDB (2024) and World Bank (2024).

These dynamics have produced pronounced asymmetries in energy endowments across countries. Some economies possess substantial generation potential but relatively small domestic markets, while others face chronic electricity shortages and limited capacity to expand supply independently. Figure 6 synthesizes these patterns by classifying Central African countries into energy-rich, moderate, and energy-deficit groups. Energy-rich countries concentrate most of the renewable generation potential, while neighboring countries struggle with persistent supply shortages. However, weak cross-border interconnections, fragmented regulatory frameworks, and nationally oriented energy policies have prevented the region from transforming these asymmetries into mutually beneficial complementarities (ECCAS, 2026).

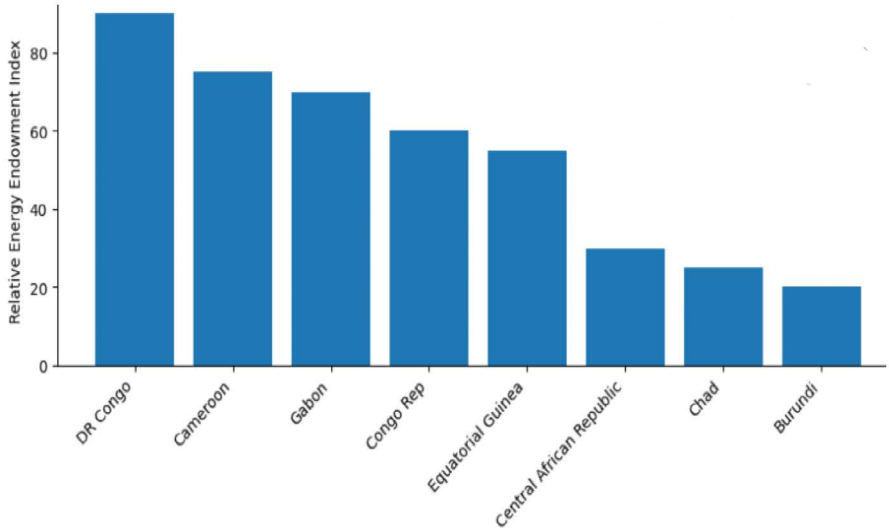


Figure 6: Energy rich vs energy deficit in Central Africa

Source: Nkafu's compilation based on reports from AfDB (2024), IRENA (2024) and World Bank (2024).

Taken together, these stylized facts indicate that Central Africa's energy challenge is not fundamentally a problem of resource scarcity, but rather one of fragmentation and coordination failure. The coexistence of widespread energy poverty, massive untapped renewable resources, and clear cross-country complementarities highlights the limitations of purely national energy strategies. Without stronger mechanisms for cross-border cooperation and infrastructure integration, countries remain unable

to fully exploit economies of scale, diversify supply sources, or balance demand across the region.

Understanding this structural paradox is therefore essential for rethinking the role of energy in Central Africa's development trajectory. Rather than treating electricity as a purely domestic policy issue, the region's energy landscape points toward the need for a regional approach capable of linking energy-rich and energy-deficit economies through shared infrastructure and coordinated investment. In this perspective, the energy transition becomes more than a sectoral reform : it offers a strategic entry point for transforming fragmented national power systems into an interconnected regional electricity network capable of supporting economic transformation and deeper regional integration.

3.3. Energy Integration as a Driver of Regional Cohesion

Addressing Central Africa's energy paradox requires moving beyond nationally fragmented electricity systems toward a model of regional energy integration capable of transforming structural asymmetries into shared development opportunities (AfDB, 2024). Regional electricity integration allows countries with surplus generation potential to supply electricity to energy-deficit neighbors through interconnected power systems and coordinated market arrangements. By enabling cross-border electricity trade and shared infrastructure, energy integration can serve as a powerful driver of regional cohesion, reinforcing economic interdependence and strengthening the foundations of regional integration within ECCAS.

A first mechanism through which energy integration fosters regional cohesion is physical interdependence through shared infrastructure. Cross-border transmission lines, interconnected national grids, and coordinated generation planning enable countries to pool resources and balance supply and demand across a wider geographic space (World Bank, 2024). In Central Africa, where energy endowments and consumption patterns differ significantly across countries, shared infrastructure allows energy-rich economies such as the Democratic Republic of Congo and Cameroon to export surplus electricity to structurally energy-deficit neighbors.

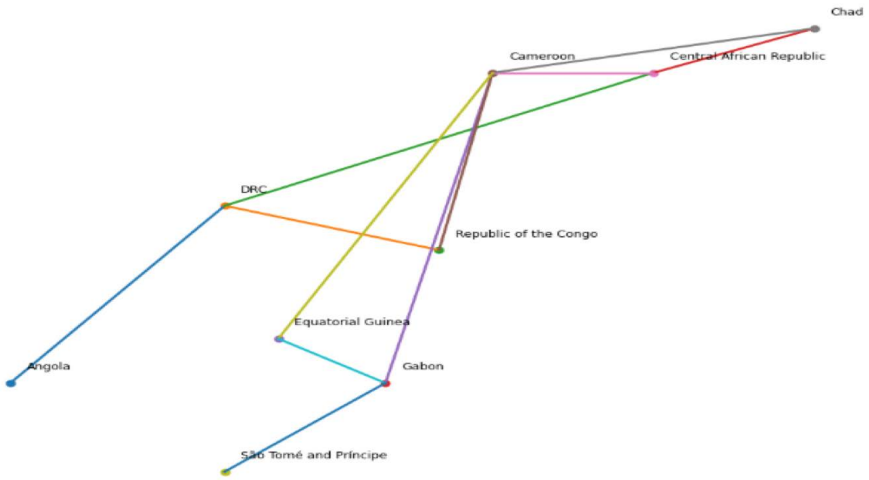


Figure 7: Potential Cross-Border Electricity Interconnection Corridors in Central Africa

Source: Nkafu's compilation based on reports from ECCAS (2026), CAPP (2023), AfDB (2024), IEA (2023), and UNECA (2023).

Figure 7 illustrates the potential cross-border electricity interconnection corridors linking the eleven ECCAS member states. The map highlights the strategic transmission routes capable of connecting major generation hubs, particularly the hydropower resources of the Congo River basin, with electricity-deficit markets across the region. The Democratic Republic of Congo emerges as a central supply anchor due to its exceptional hydropower potential, while Cameroon plays a potential role as a regional

distribution hub linking coastal and landlocked economies. By facilitating electricity flows across borders, these interconnection corridors represent the physical backbone of a future regional electricity market capable of improving reliability, reducing system costs, and strengthening regional economic interdependence.

This pooling of resources reduces the need for costly redundant investments in national generation capacity while improving overall system reliability. At the same time, cross-border electricity infrastructure generates long-term sunk costs that increase incentives for sustained political cooperation, thereby reinforcing regional stability (IEA, 2023).

A second channel operates through economic complementarity and regional value creation. Reliable and affordable electricity is a critical input for industrial production, agro-processing, mining, manufacturing, and digital services. When electricity supply constraints are reduced through regional power trade, firms are better able to expand production, attract investment, and participate in regional value chains. In this sense, electricity integration directly supports the objectives of the African Continental Free Trade Area by providing the energy foundation necessary for trade liberalization to translate into productive capacity.

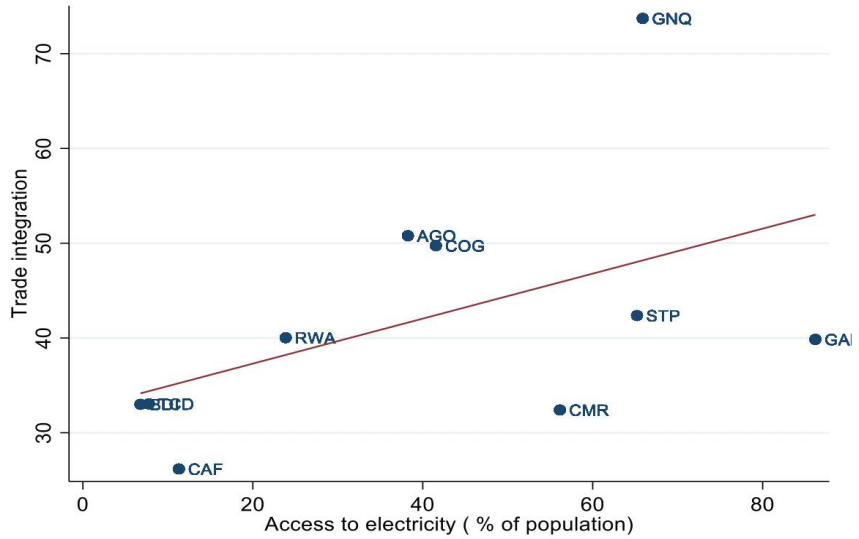


Figure 8: Correlation between electricity access and commercial integration

Source: Nkafu's computation of World Bank data (2025), using Stata 17

Figure 8 illustrates the relationship between total access to electricity and the trade integration indicator in ECCAS countries. It suggests that countries with higher electricity access tend to engage more in regional trade. This relationship likely reflects the role that a reliable electricity supply plays in reducing production costs and manufacturing value-added goods for cross-border trade. Similar observations are made regarding electricity access in urban areas; however, the correlation is weaker when considering access in rural areas (see figures 16 and 17 on appendix). This indicates that regional trade integration in Central Africa is currently driven by urban, often industrial activities, while rural electrification, which typically focuses on basic domestic needs, has not yet been fully integrated into the regional value chain.

Complementing this evidence, Figure 9 explores the relationship between renewable energy consumption and commercial integration in Central Africa. The figure shows that countries with higher shares of renewable energy in their energy mix tend to display greater trade openness and, in some cases, stronger

participation in intra-African trade. Renewable energy development, particularly hydropower often involves large-scale infrastructure investments that create opportunities for cross-border electricity trade and regional energy cooperation.

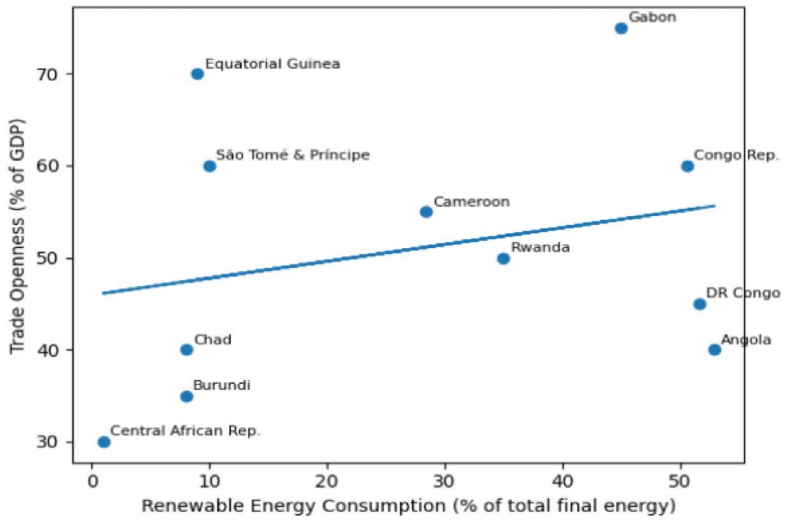


Figure 9: Renewable Energy Consumption and Commercial Integration in Central Africa

Source: Nkafu's computation of World Bank data (2025), using Stata 17.

While these relationships should be interpreted cautiously as correlations rather than causal effects, they nonetheless highlight the structural importance of energy availability for regional economic integration. Electricity access and renewable energy development are themselves influenced by broader factors such as income levels, institutional capacity, and infrastructure investment, variables that also shape trade performance. Nevertheless, the patterns illustrated in Figures 7 and 9 reinforce the argument that energy constraints constitute a significant barrier to deeper commercial integration in Central Africa.

Beyond industrial competitiveness, electricity integration can also generate important social dividends by expanding electricity access and improving service reliability across the region. Cross-border power trade allows countries with limited domestic generation capacity to access electricity imports at lower costs than would be possible through purely national expansion strategies. This dynamic is particularly relevant for smaller or landlocked economies that face significant financial and technical constraints in developing large-scale generation projects independently (IRENA, 2024).

A third mechanism relates to institutional strengthening and policy coordination. Regional electricity markets require harmonized technical standards, coordinated planning, transparent tariff-setting mechanisms, and credible dispute-resolution frameworks. The process of establishing these institutions can generate positive spillovers beyond the energy sector by improving regulatory quality, strengthening regional governance structures, and enhancing policy coordination among member states.

Overall these findings highlight how energy integration can generate a triple dividend for regional cohesion: physical interdependence through shared infrastructure, economic complementarity through cross-border electricity trade, and institutional strengthening through coordinated governance frameworks. These dividends are mutually reinforcing. Improved infrastructure enables electricity trade; electricity trade stimulates economic activity and regional value chains; and expanding regional markets create incentives for stronger institutions and regulatory harmonization.

In Central Africa, where traditional trade-led integration has been constrained by weak productive

linkages and limited infrastructure connectivity, electricity integration offers a pragmatic pathway toward functional regionalism. By embedding cooperation within tangible infrastructure networks and shared economic incentives, regional electricity markets can transform energy from a national bottleneck into a catalyst for deeper economic interdependence and regional cohesion.

3.4. Comparative Lessons from the West African Power Pool (WAPP)

While the potential benefits of regional electricity integration in Central Africa are substantial, the experience of other African regions demonstrates that such integration requires sustained institutional commitment, coordinated investments and carefully sequenced reforms. In this regard, the West African Power Pool (WAPP) provides a particularly relevant point of comparison. Established in 2000 under the framework of the Economic Community of West African States (ECOWAS), WAPP was created to integrate national power systems into a unified regional electricity market capable of ensuring reliable and affordable electricity supply across member states (World Bank, 2025).

Over the past two decades, WAPP has made significant progress in developing cross-border transmission infrastructure and facilitating electricity trade among West African countries. Through a combination of regional planning, donor support, and strong institutional coordination, the initiative has gradually transformed a set of fragmented national power systems into an increasingly interconnected regional electricity network (IEA, 2023). Today, several West African countries regularly engage in cross-border electricity exchanges, with major generation hubs such as Nigeria, Côte d'Ivoire, and Ghana supplying electricity to neighboring economies through regional transmission corridors.

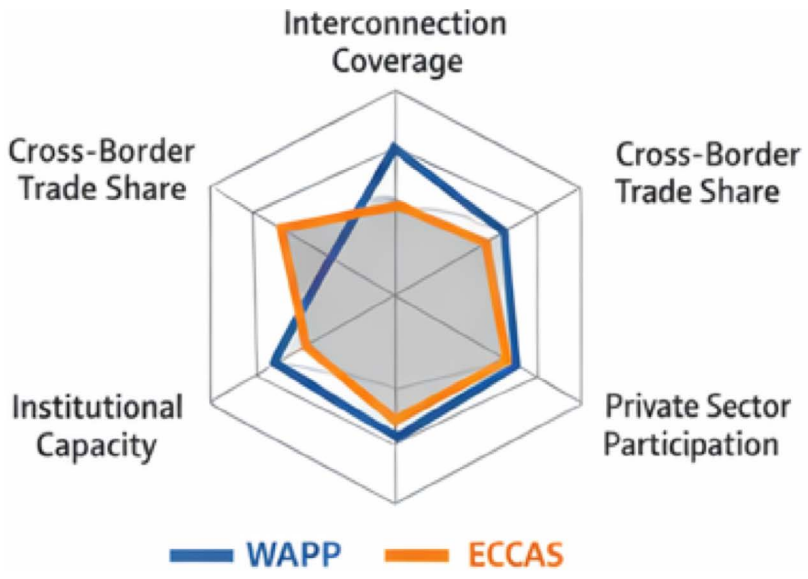


Figure 10: Performance Gap Between WAPP and ECCAS Power Pools

Source: Nkafu's compilation based on reports from AfDB (2024), WAPP (2024), CAPP (2023), and IEA (2023).

Figure 10 highlights the performance gap that continues to separate West Africa's electricity integration framework from that of Central Africa. Compared with ECCAS, the West African region exhibits significantly higher levels of interconnection coverage, cross-border electricity trade, and institutional coordination. These differences are not primarily the result of more favorable resource endowments, but rather reflect the cumulative effects of stronger regional institutions, clearer

regulatory frameworks, and more consistent political commitment to regional energy cooperation (AfDB, 2024).

The WAPP experience offers several important lessons for Central Africa. First, regional electricity integration requires a long-term and phased approach, beginning with the development of priority transmission infrastructure before advancing toward more complex market mechanisms. Second, institutional coordination and governance structures are critical to ensure that national energy policies remain aligned with regional objectives. Third, regional planning frameworks and credible regulatory mechanisms are essential to attract private investment and mobilize financing for large-scale infrastructure projects.

Equally important, the West African experience illustrates that regional electricity markets can play a broader role in supporting economic integration and development. By improving energy security, lowering electricity costs, and enabling the expansion of industrial activity, WAPP has contributed to strengthening economic linkages across ECOWAS member states. Although challenges remain, particularly regarding financial sustainability and regulatory harmonization the initiative demonstrates that regional electricity integration is both technically feasible and economically beneficial in the African context (AfDB, 2024).

For Central Africa, these lessons are particularly relevant. The region's abundant renewable energy potential, combined with significant disparities in electricity supply and demand, creates strong incentives for cross-border electricity cooperation. However, translating this potential into a functioning regional electricity market will require institutional strengthening, coordinated investment strategies, and sustained political leadership comparable to that observed in West Africa.

3.5. Operationalizing the Central African Power Pool (CAPP)

While the strategic rationale for regional electricity integration in Central Africa is compelling, translating this vision into reality requires concrete institutional, infrastructural, and market reforms. The Central African Power Pool (CAPP) was established precisely to fulfill this role by coordinating the development of a regional electricity market among member states of the Economic Community of Central African States (ECCAS). However, despite its formal establishment, progress toward a fully operational regional electricity market has remained limited. Operationalizing CAPP therefore represents a critical step in transforming the region's energy potential into a driver of regional integration and economic transformation.

At its core, the objective of CAPP is to integrate national electricity systems into a coordinated regional network capable of facilitating cross-border power trade, improving energy security, and optimizing the use of the region's abundant renewable energy resources. Achieving this objective requires three mutually reinforcing pillars: the development of cross-border transmission infrastructure, the establishment of a functional electricity trading framework, and the strengthening of regional institutional capacity (ECCAS, 2026).

The first pillar concerns the expansion of regional transmission infrastructure. As discussed earlier, Central Africa's energy challenges stem less from resource scarcity than from fragmented national power systems and limited cross-border interconnections. Expanding regional transmission corridors is therefore essential to connect energy-rich countries with energy-deficit markets and enable the physical flow of electricity across borders.

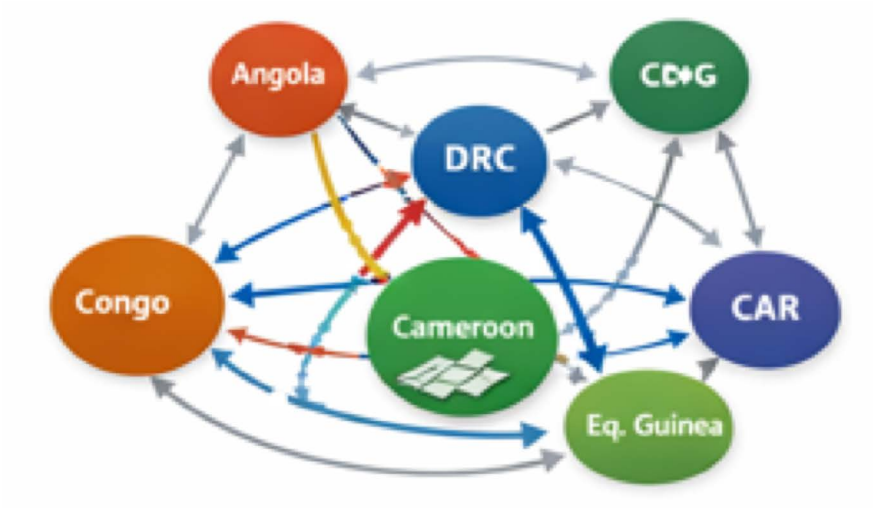


Figure 11: Priority Electricity Transmission Corridors for CAPP

Source: Nkafu's compilation based on reports from ECCAS (2026), CAPP (2023), UNECA (2023), AfDB (2024), and IEA (2023).

Figure 11 presents a conceptual map of priority electricity interconnection corridors within the Central African region. The figure highlights several high-impact transmission links connecting major generation hubs, particularly in the Democratic Republic of the Congo and Cameroon with neighboring electricity markets across ECCAS. These corridors would form the backbone of a regional electricity network capable of facilitating power trade, improving system reliability, and reducing generation costs across the region.

Beyond enabling electricity exchange, cross-border transmission infrastructure creates structural incentives for sustained cooperation among participating countries. Large infrastructure investments generate long-term economic interdependence, raising the opportunity cost of political disengagement and reinforcing the stability of regional integration arrangements (UNECA, 2023).

The second pillar involves the development of a regional electricity trading framework. Infrastructure alone cannot generate integration without market mechanisms that allow electricity to be traded efficiently across borders. Establishing a functional regional market therefore requires harmonized technical standards, coordinated dispatch systems, transparent tariff structures, and standardized power-purchase agreements.

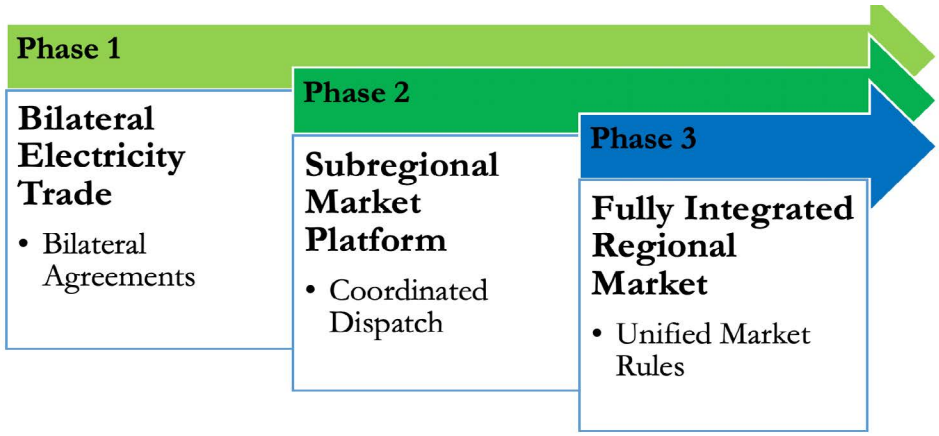


Figure 12: Phased Development of the Central African Electricity Market

Source: Nkafu's compilation based on reports from ECCAS (2026), CAPP (2023), UNECA (2023), AfDB (2024), and IEA (2023).

Figure 12 illustrates a possible phased model for the development of a regional electricity market under CAPP. In the initial stage, electricity trade may occur primarily through bilateral power-purchase agreements between neighboring countries. These agreements allow countries to begin exchanging electricity while building confidence in cross-border trade arrangements. In a second stage, a subregional trading platform can be introduced to facilitate multi-country exchanges and improve system coordination. Ultimately, these mechanisms can evolve into a fully integrated regional electricity market with transparent dispatch and settlement systems.

A phased approach is particularly important in the Central African context, where countries differ significantly in terms of generation capacity, institutional readiness, and regulatory frameworks. Allowing countries to participate progressively, while maintaining a shared long-term integration vision can help mitigate political economy constraints and ensure that reforms remain politically feasible.

The third pillar concerns institutional strengthening and governance reform (AfDB, 2024). A functioning regional electricity market requires credible regional institutions capable of coordinating investment planning, regulating cross-border trade, and resolving disputes among participating countries. Without such institutions, infrastructure investments and trading arrangements risk remaining underutilized.

Strengthening the governance framework of CAPP therefore involves clarifying institutional mandates, enhancing technical capacity, and establishing transparent regulatory mechanisms. Regional institutions must be able to coordinate national investment plans, monitor system performance, and ensure that market rules are applied consistently across member states.

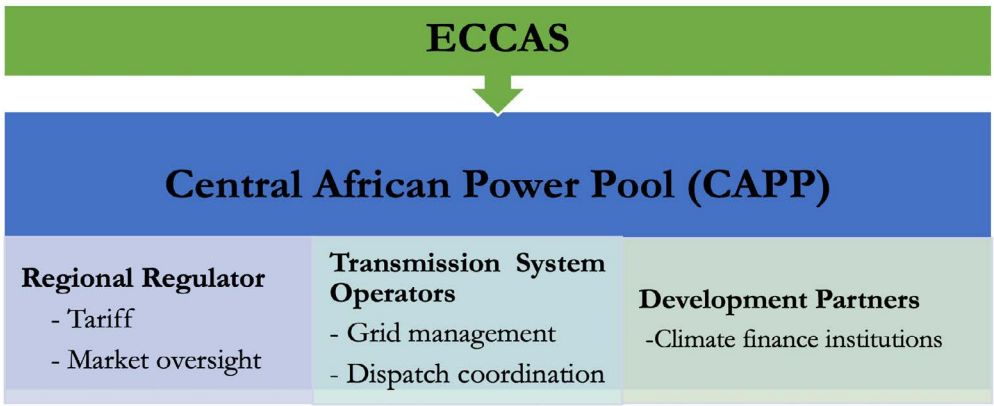


Figure 13: Institutional Architecture for the Central African Electricity Market

Source: Nkafu' compilation based on reports from ECCAS (2026), CAPP (2023), AfDB (2024), and UNECA (2023).

Figure 13 illustrates the institutional architecture required to support an operational regional electricity market in Central Africa. The figure highlights the complementary roles of national utilities, regional regulatory bodies, transmission system operators, and regional coordination institutions such as CAPP and ECCAS. Effective coordination among these actors is essential to ensure the smooth functioning of cross-border electricity trade.

Importantly, operationalizing CAPP would generate benefits extending beyond the energy sector. By embedding cooperation within shared infrastructure networks and market institutions, the regional electricity market would strengthen economic interdependence among Central African countries and support broader regional integration objectives. Improved electricity reliability would also facilitate industrial development, expand regional value chains, and strengthen the economic foundations of the African Continental Free Trade Area (AfCFTA).

Nevertheless, several challenges must be addressed to ensure the successful implementation of CAPP. These include the high capital costs associated with cross-border infrastructure, regulatory fragmentation across national energy sectors, and the limited technical and financial capacity of some member states. Overcoming these constraints will require sustained political commitment, coordinated regional planning and strong support from development partners (AfDB, 2024).

Collectively these evidence show that operationalizing the Central African Power Pool should be viewed not merely as a sectoral reform but as a strategic platform for regional integration. By developing shared infrastructure, establishing functional electricity markets, and strengthening regional institutions, CAPP has the potential to transform Central Africa's energy landscape and provide the structural foundation for deeper economic integration across the region.

3.6. Financing the Energy-Integration Nexus

The successful development of a regional electricity market in Central Africa ultimately depends on the mobilization of large-scale and sustained financing. Cross-border transmission lines, regional generation projects, and system modernization require substantial upfront investment, often exceeding the fiscal capacities of individual countries (IEA, 2023). Financing therefore represents one of the most critical constraints to operationalizing regional energy integration. However, when approached strategically, regional electricity projects can also unlock new financing opportunities by pooling demand, reducing risks, and aligning infrastructure investment with the global energy transition agenda.

Regional electricity integration projects differ from purely national energy investments in several important ways. Because they connect multiple markets and generate benefits across borders, they often present stronger economic fundamentals and greater long-term demand stability. Shared infrastructure allows countries to achieve economies of scale in generation and transmission while reducing the need for duplicative investments in national systems (IRENA, 2024). These characteristics can improve project bankability and attract a broader range of financing sources, including multilateral development banks, climate finance institutions, and private investors.

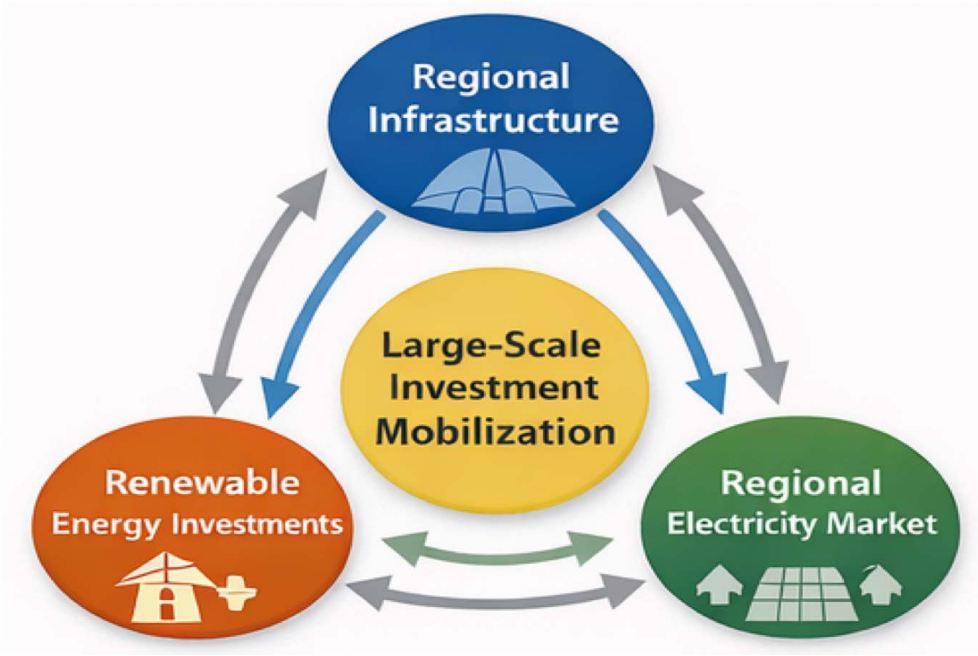


Figure 14: Energy Integration and Financing Ecosystem

Source: Nkafu' compilation based on reports from AfDB (2024), IRENA (2024), IEA (2023), and CAPP (2023).

Figure 14 illustrates the conceptual relationship between regional electricity integration and financing opportunities in Central Africa. The figure highlights how cross-border infrastructure, renewable energy deployment, and regional electricity trade mutually reinforce one another to create a scalable investment ecosystem. By aggregating demand across several countries and enabling large-scale renewable energy projects, particularly hydropower and solar, regional electricity markets can significantly improve the financial viability of energy investments.

At the same time, regional integration can reduce some of the key risks that have historically discouraged private sector participation in Central Africa's energy sector. Larger regional markets improve revenue predictability for generation projects, while diversified supply networks reduce exposure to national-level supply disruptions or demand volatility. Cross-border electricity trade also enables more efficient dispatch of generation assets, increasing overall system utilization and improving financial returns on infrastructure investments.

A second dimension of the financing challenge relates to the global shift toward climate-aligned investment. As international financial institutions and development partners increasingly prioritize low-carbon and climate-resilient infrastructure, regional electricity integration projects that expand renewable energy generation and strengthen climate resilience are well positioned to attract concessional finance and blended funding mechanisms. Hydropower development, solar expansion, and grid interconnection projects can contribute simultaneously to emissions reduction, climate adaptation, and energy access objectives, priorities that align closely with the mandates of global climate finance institutions.

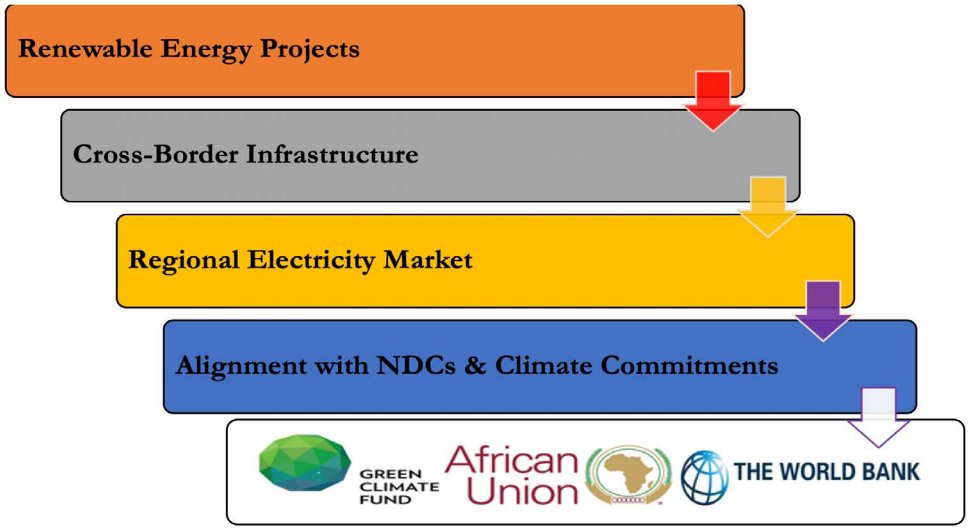


Figure 15: Energy Integration and Climate Finance Alignment

Sourrce: Nkafu' compilation based on reports from IRENA (2024), IEA (2023), World Bank (2024), and ECCAS (2026).

Figure 15 illustrates the potential alignment between regional electricity integration and climate finance flows. The figure highlights how cross-border renewable energy infrastructure can serve as a bridge between national development priorities and international climate commitments. By integrating regional electricity projects into nationally determined contributions (NDCs) and long-term low-emission development strategies, Central African countries can enhance the eligibility of these projects for international climate finance support.

However, mobilizing financing for regional electricity infrastructure also requires addressing important institutional and regulatory constraints. Investors typically face elevated risks in cross-

border projects due to regulatory inconsistencies, political uncertainty, and the absence of clear dispute resolution mechanisms. Strengthening regional governance frameworks, including transparent tariff-setting mechanisms, standardized power-purchase agreements, and credible regional regulatory oversight will therefore be essential to reduce risk perceptions and improve investor confidence.

In addition, project preparation capacity remains a major bottleneck in many Central African countries. Developing bankable infrastructure projects requires significant technical expertise, feasibility studies, environmental and social safeguards, and financial structuring. Regional institutions can play a critical role in supporting project preparation through shared technical platforms, regional project preparation facilities, and coordinated planning mechanisms that align national infrastructure priorities with regional integration objectives.

Finally, financing strategies should incorporate blended finance approaches that combine public funding, concessional loans, private investment, and climate finance. Public resources and concessional funding can be used to reduce early-stage project risks and finance transmission infrastructure that may not be immediately commercially viable but generates strong regional public goods. Once core infrastructure is in place, private capital can play a larger role in financing generation capacity, renewable energy projects, and complementary energy services (World Bank, 2024).

These dynamics illustrate how the financing challenge can be reframed as an opportunity. Regional electricity integration does not simply require more investment; it creates the conditions for mobilizing new forms of finance by expanding markets, reducing risks, and aligning infrastructure development with global climate priorities. By strategically leveraging regional cooperation, Central Africa can transform the financing constraints that have historically limited its energy sector into a catalyst for large-scale investment in sustainable energy infrastructure.

IV.

A Phased Roadmap for Functional Regional Integration in Central Africa

Central Africa's integration challenge is not the absence of policy frameworks but the persistent gap between commitments and implementation. Regional strategies, including ECCAS Vision 2025, the CEMAC PREF-CEMAC program, and continental initiatives under the Programme for Infrastructure Development in Africa (PIDA) have repeatedly emphasized infrastructure connectivity, energy cooperation, and institutional coordination.

However, progress has been limited due to implementation gaps, institutional fragmentation, and weak accountability mechanisms. Moving forward therefore requires a shift from declarative integration toward pragmatic, phased reforms focused on measurable economic outcomes.

To translate integration commitments into practical results, this report proposes a three-phase reform roadmap that prioritizes quick wins, builds institutional capacity over time, and gradually expands regional economic integration.

4.1. Phase I (2026-2028): Quick Wins to Restore Momentum

The first phase focuses on politically feasible reforms that can deliver visible results in the short term. Early successes are essential for restoring confidence in regional cooperation.

Priority Actions

4.1.1. Launch corridor-based integration pilots

Regional cooperation should begin with a limited number of priority corridors where implementation is most feasible.

Priority corridors include :

- Douala-Bangui corridor
- Pointe-Noire-Brazzaville-Kinshasa corridor
- Cameroon-Gabon-Congo energy corridor

These corridors already exist in regional planning frameworks and therefore allow implementation without creating new institutional structures.

4.1.2. Establish Corridor Delivery Units

Dedicated implementation teams should coordinate reforms along each corridor.

Responsibilities include :

- Coordinating border management reforms
- Monitoring infrastructure projects
- Tracking trade facilitation improvements

4.1.3. Initiate regional electricity trade pilots

Electricity trade agreements between neighboring countries can begin immediately once technical standards are harmonized. Early cooperation should focus on bilateral or trilateral exchanges before expanding to a full regional market.

Expected Outcomes

- Border clearance times reduced by 30%
- Transport costs reduced by 20% along pilot corridors
- Initial cross-border electricity trade arrangements established

4.2. Phase II (2028-2035) : Building Regional Infrastructure and Markets

Once early cooperation mechanisms are operational, the second phase should focus on expanding infrastructure networks and strengthening regional institutions.

Priority Actions

4.2.1. Clarify the institutional division of labour between ECCAS and CEMAC

Regional governance should be strengthened through a clear functional separation:

- ECCAS: strategic coordination and political leadership
- CEMAC: operational implementation of trade facilitation and customs integration

This reform would reduce institutional duplication and improve policy coherence.

4.2.2. Operationalize the Central African Power Pool

Regional electricity cooperation should move from coordination toward market operations.

Key steps include :

- Harmonizing grid codes and tariff methodologies
- Standardizing power-purchase agreements
- Developing cross-border transmission infrastructure

4.2.3. Expand priority transmission corridors

Regional transmission projects should connect energy-rich countries to electricity-deficit markets, particularly linking:

- Democratic Republic of the Congo hydropower resources
- Cameroon's emerging regional grid hub
- Electricity-deficit economies in the region

Expected Outcomes **:**

- Regional electricity markets begin operating
- Significant reduction in power outages for industrial users
- Increased cross-border infrastructure connectivity

4.3. Phase III (2035-2040): Toward Deep Regional Economic Integration

The final phase focuses on consolidating earlier reforms and moving toward fully integrated regional markets.

Priority Actions

4.3.1. Expand regional electricity trade

By this stage, the Central African Power Pool should evolve into a functional regional electricity market.

Target: cross-border electricity trade reaching 15-20% of total regional electricity supply

4.3.2. Strengthen monitoring and accountability mechanisms

Regional integration progress should be monitored through annual integration scorecards tracking:

- Transport costs
- Electricity reliability
- Border clearance times
- Intra-regional trade levels

4.3.3. Scale regional investment pipelines

A regional project preparation facility should ensure a continuous pipeline of bankable infrastructure projects. Blended finance mechanisms combining concessional loans, guarantees, and private investment will be essential for financing large-scale regional infrastructure.

Expected Outcomes **:**

- Fully operational regional electricity market
- Deeper trade integration under the African Continental Free Trade Area
- Stronger regional infrastructure networks

To operationalize the policy recommendations outlined in this section, table A.1 in appendix summarizes the proposed policy action matrix for advancing functional regional integration in Central Africa.

V.

Conclusion: Reimagining Economic Transformation in Central Africa through Energy as an Enabler

Central Africa stands at a decisive moment in its development trajectory. The establishment of the African Continental Free Trade Area has created unprecedented opportunities for regional economic cooperation and market expansion.

Yet the evidence presented in this report demonstrates that regional integration in Central Africa remains constrained by structural fragmentation. Despite numerous treaties, policy frameworks, and regional institutions, the region has struggled to translate political commitments into concrete economic outcomes.

Overcoming this gap requires a fundamental shift in how integration is pursued. Rather than emphasizing formal agreements alone, regional cooperation must focus on functional integration grounded in infrastructure, energy systems, and operational regional markets.

Energy cooperation represents a particularly promising entry point for this transformation. Reliable electricity is a prerequisite for industrial development, investment attraction, and participation in regional value chains. By connecting national power systems and enabling cross-border electricity trade, regional energy integration can generate tangible economic benefits for both energy-rich and energy-deficit countries.

At the same time, institutional reform remains essential. Clearer coordination between regional organizations, stronger monitoring mechanisms, and more predictable financing arrangements are necessary to ensure that integration commitments translate into measurable outcomes.

The phased roadmap proposed in this report emphasizes pragmatism, sequencing, and accountability. Quick wins in corridor development and energy cooperation can build momentum in the short term, while deeper institutional reforms and infrastructure investments gradually expand regional economic integration over time.

In an increasingly fragmented global economy, regions that succeed in building integrated infrastructure networks and coordinated markets will be better positioned to attract investment and participate in emerging value chains.

For Central Africa, advancing functional regional integration is therefore not simply a policy choice. It is a strategic imperative for economic transformation, resilience, and long-term development.

Appendices

Table 1: Indicative Dashboard of Regional Integration Performance across Selected RECs

REC / Sub-region	ARII 2019 average score	Indicative intra-regional trade intensity	Institutional depth (selected features)	Practical implementation signal
EAC	0.537	≈15-20% of total trade (recent years) (East African Community, 2023; Yaduma & Khan, 2020)	Customs Union and elements of a Common Market; strong mobility provisions	Comparatively stronger trade facilitation delivery (e.g., NTB reporting tools, OSBPs, corridor governance)

ECOWAS	0.425	Single-digit to low-teens (indicative) (Yaduma & Khan, 2020)	Protocols on free movement; CET operational; long-standing integration agenda	Major corridors and hubs; enforcement uneven but institutional tools exist
SADC	0.337	≈23% of total trade (2021/22) (Southern African Development Community, 2023)	FTA with sectoral cooperation and trade facilitation initiatives	Relatively strong corridor programmes; mixed customs interoperability across members
ECCAS / CEMAC	0.442 (ECCAS) 0.365 (CEMAC)	≈3.5% of total trade (CEMAC, 2019) (World Trade Organization, 2023)	Monetary union in CEMAC; weaker productive integration and corridor governance	Severe corridor gaps, administrative fragmentation, and insecurity constrain implementation

Note: Trade intensity figures are indicative and drawn from different sources and years; they should be interpreted as orders of magnitude rather than strictly comparable statistics.
Source: Nkafu's compilation based on reports from AfDB (2024), UNECA (2020), and Africa Regional Integration Index Report (2019).

Table 2: Overlapping membership in ECCAS countries

Countries	ECCAS	CEMAC	SADC	EAC
Angola	YES	NO	YES	NO
Burundi	YES	NO	NO	YES
Central African Republic	YES	YES	NO	NO
Chad	YES	YES	NO	NO
Democratic Republic of Congo	YES	NO	YES	YES
Equatorial Guinea	YES	YES	NO	NO
Gabon	YES	YES	NO	NO
The Republic of Congo	YES	YES	NO	NO
Sao Tome Principe	YES	NO	NO	NO

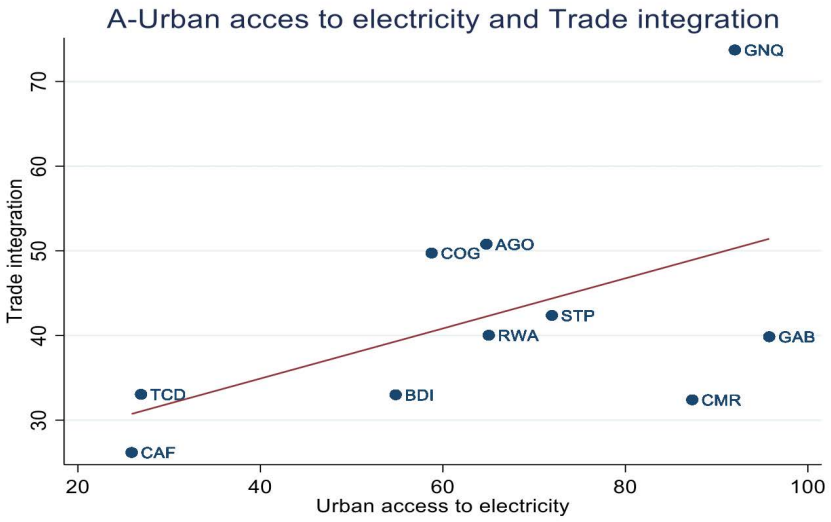


Figure 16: Correlation between urban access to electricity and trade integration

Source: Nkafu computation of World Bank data (2025), using Stata 17.

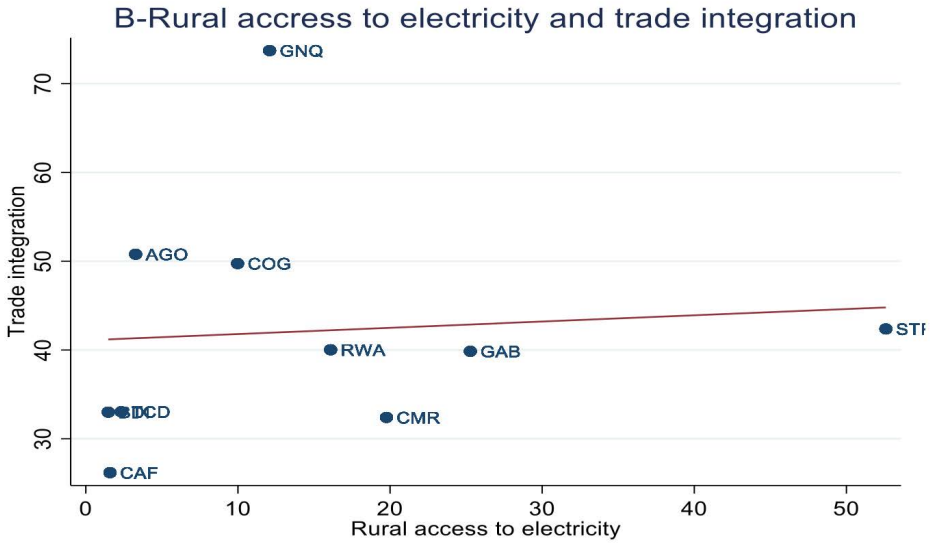


Figure 17:Correlation between rural access to electricity and trade integration

Source: Nkafu computation of World Bank data (2025), using Stata 17.

Table 3: Policy Action Matrix for Functional Regional Integration in Central Africa

Phase	Strategic Objective	Key Policy Actions	Lead Institutions	Timeline	Expected Outcomes
Phase I: Quick Wins	Restore momentum and demonstrate the benefits of regional cooperation	Launch pilot integration corridors: Douala-Bangui, Pointe-Noire-Brazzaville-Kinshasa, and Cameroon–Gabon-Congo energy corridor	National governments, Economic Community of Central African States, Central African Economic and Monetary Community	2026-2028	Reduced transport and logistics costs along key trade routes
	Improve corridor	Establish Corridor Delivery Units to coordinate infrastructure projects and border management reforms	ECCAS Secretariat, CEMAC Commission, national corridor authorities		Faster project implementation and improved cross-border coordination
	Initiate regional electricity cooperation	Launch bilateral or trilateral electricity trade pilots following harmonization of technical standards	Central African Power Pool, national electricity utilities		Initial cross-border electricity exchanges established
Phase II:	Strengthen regional institutions and expand infrastructure networks	Clarify institutional roles between ECCAS (strategic coordination) and CEMAC (operational economic integration)	ECCAS Secretariat, CEMAC Commission, member states	2028-2035	Reduced institutional duplication and stronger regional governance
	Operationalize regional electricity markets	Harmonize grid codes, tariff methodologies, and power purchase agreements	CAPP Secretariat, national energy regulators and utilities		Functional regional electricity trading arrangements
	Expand regional transmission infrastructure	Develop priority interconnections linking DRC hydropower resources, Cameroon grid hubs, and electricity-deficit economies	National governments, CAPP, development partners		Improved electricity reliability and expanded regional energy trade

Phase III: Deep Regional Integration	Consolidate integration gains and create fully integrated regional markets	Expand regional electricity trade and develop a regional power market	CAPP Secretariat, national utilities, regional regulators	2035-2040	Cross-border electricity trade reaching 15-20% of regional supply
	Strengthen monitoring and accountability mechanisms	Publish annual regional integration scorecards tracking trade, infrastructure performance, and energy reliability	ECCAS Secretariat, CEMAC Commission		Improved transparency and accountability in regional integration
	Expand regional investment pipelines	Establish a regional project preparation facility and scale blended finance instruments	ECCAS, African Development Bank, development partners		Pipeline of bankable infrastructure projects and increased private investment

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