

AfSEM: Powering Africa's Investment-Ready Continental Electricity Market



By:
Shehu Ibrahim Khaleel
Senior Energy Advisor
GIZ-African Union
Addis Ababa, Ethiopia

Africa stands at an inflection point. The old model of government-planned, government-financed, and government-owned electricity infrastructure can no longer meet the continent's rapidly expanding energy demands or the transformative ambitions of Agenda 2063

and the African Continental Free Trade Area (AfCFTA). The African Single Electricity Market (AfSEM) is architecting a new paradigm, one that transitions Africa from public infrastructure dependency to a dynamic, investment-enabled continental electricity market capable of attracting hundreds of billions in long-term capital.

The Old Model Is No Longer Enough

THE CHALLENGE

For decades, Africa's electricity infrastructure followed a single, dominant logic: governments planned the projects, governments financed the projects, governments owned the infrastructure, and governments assumed virtually all the risks. This model delivered important national assets, power stations, national grids, and domestic distribution networks, but it was never designed to meet the scale, speed, or complexity of what Africa now requires.

Today, the continent faces a convergence of pressures that collectively render the traditional model obsolete. Electricity demand is growing at an accelerating rate, driven by population growth, urbanisation, industrialisation, and the digital economy. At the same time, governments across Africa are navigating fiscal constraints, rising debt burdens, competing development priorities, and shrinking public resources. The public balance sheet simply cannot carry the weight of the investment required.

Africa requires hundreds of billions of dollars to expand electricity generation, modernise transmission networks, integrate renewable energy at scale, deploy battery energy storage systems (BESS), and construct the cross-border interconnections necessary for a fully integrated continental electricity market. No government or development bank can provide this alone.

Generation Expansion

New capacity to meet rising demand across urban and industrial centres

Transmission Modernisation

Grid upgrades and cross-border interconnections for regional integration

Renewable Integration

Utility-scale solar, wind, hydro, and geothermal at regional scale

Energy Storage

Battery energy storage systems to enable grid stability and flexibility

From an Infrastructure Problem to an Investment Challenge

The fundamental question facing Africa's electricity sector has shifted. It is no longer a question of engineering capability or technical know-how. Africa has those. The challenge facing the continent today is one of investment architecture, of creating the enabling conditions under which long-term, patient capital can flow with confidence.

The question is no longer *"Who can build Africa's electricity infrastructure?"*

The question has become: *"How do we create an enabling market capable of attracting long-term public and private investment while effectively allocating risks?"*

This reframing is not merely rhetorical. It has profound implications for policy, regulation, institutional design, and market architecture. It means that the primary task of continental electricity integration is not simply to build more power plants or lay more transmission lines. It is to construct the market frameworks, regulatory certainty, risk-sharing mechanisms, and governance structures that make those projects financeable in the first place.

This is precisely the transformation that AfSEM is enabling, and it is why AfSEM represents one of the most consequential infrastructure initiatives on the African continent today.

What AfSEM Actually Is

MARKET ARCHITECTURE

AfSEM is fundamentally misunderstood if it is seen merely as a cross-border electricity trading platform. It is far more than that. AfSEM is creating the continental market architecture required for long-term infrastructure finance, the full ecosystem of rules, institutions, frameworks, and mechanisms that allow investment to flow across borders at scale and with confidence.

Rather than focusing solely on the mechanics of electricity trading, AfSEM is developing the enabling environment that investors, financiers, and development partners require before they can commit capital to complex, long-duration cross-border infrastructure projects. This distinction is critical. A market without enabling architecture is merely a theoretical construct. AfSEM is building the architecture that makes the market real, bankable, and investable.



Harmonised Market Rules

Coordinated regional electricity market rules that create consistency across jurisdictions and reduce regulatory arbitrage



Regulatory Frameworks

Coordinated regulatory structures that align national frameworks with continental market requirements



Market Transparency

Open and transparent electricity markets that reduce information asymmetry and enhance investor confidence



Bankable Frameworks

Cross-border investment frameworks and risk-sharing arrangements designed for institutional finance

The Full Architecture of the AfSEM Enabling Environment

Creating an investment-ready continental electricity market requires a comprehensive set of interlocking reforms. No single intervention is sufficient in isolation. It is the combination, the architecture, that transforms investor perception of risk and unlocks capital at scale. AfSEM is systematically building each of these pillars.

Harmonised Regional Electricity Market Rules

Standardised rules that govern how electricity is traded, dispatched, and settled across national boundaries, reducing legal and commercial uncertainty for investors operating in multiple jurisdictions.

Coordinated Regulatory Frameworks

Alignment of national regulatory regimes with continental standards, ensuring that licences, tariffs, and compliance requirements do not create barriers to cross-border investment.

Regional System Operation

Coordinated grid operation across national boundaries that ensures reliable electricity flows, supports balancing markets, and enables optimal dispatch of regional generation resources.

Predictable Market Governance

Clear, transparent, and enforceable governance structures that give investors confidence in how decisions are made, how disputes are resolved, and how the market will evolve over time.

Investment Facilitation Mechanisms

Dedicated structures to support project preparation, credit enhancement, and investment facilitation, reducing the transaction costs and barriers that prevent capital from reaching viable projects.

Regional Project Preparation

Technical assistance and financing for early-stage project development, ensuring that cross-border infrastructure projects are structured to meet the requirements of international capital markets.

From Government Financing to Investment Facilitation

CAPITAL TRANSITION

Africa's future electricity system cannot rely exclusively on public finance. This is not a political statement, it is a mathematical reality. The scale of investment required vastly exceeds the combined capacity of African governments and traditional development finance institutions acting alone. AfSEM therefore designed to support a fundamental transition in how Africa's electricity infrastructure is conceived, financed, and owned.

The shift is from government-funded infrastructure to investment-enabled infrastructure. Rather than governments financing every project from public balance sheets, AfSEM seeks to create the conditions under which a broad and diverse pool of long-term institutional capital can participate with confidence, security, and appropriate risk-adjusted returns.



Pension Funds

Long-duration, yield-seeking capital ideal for infrastructure assets



Sovereign Wealth Funds

Patient capital with mandate for strategic continental development



Development Finance Institutions

Catalytic capital with concessional tools to de-risk private investment



Commercial Banks

Structured finance for projects with strong off-take and revenue certainty



Infrastructure Funds

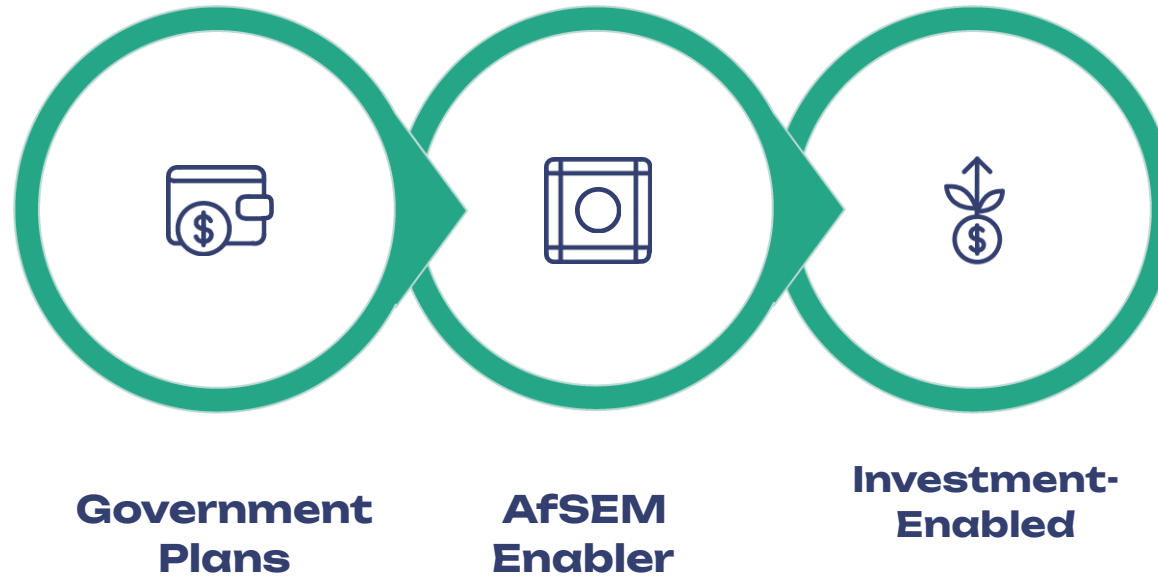
Specialist equity and debt capital for complex cross-border assets



Independent Power Producers

Private developers able to compete for regional generation contracts

The Investment Transition in Practice



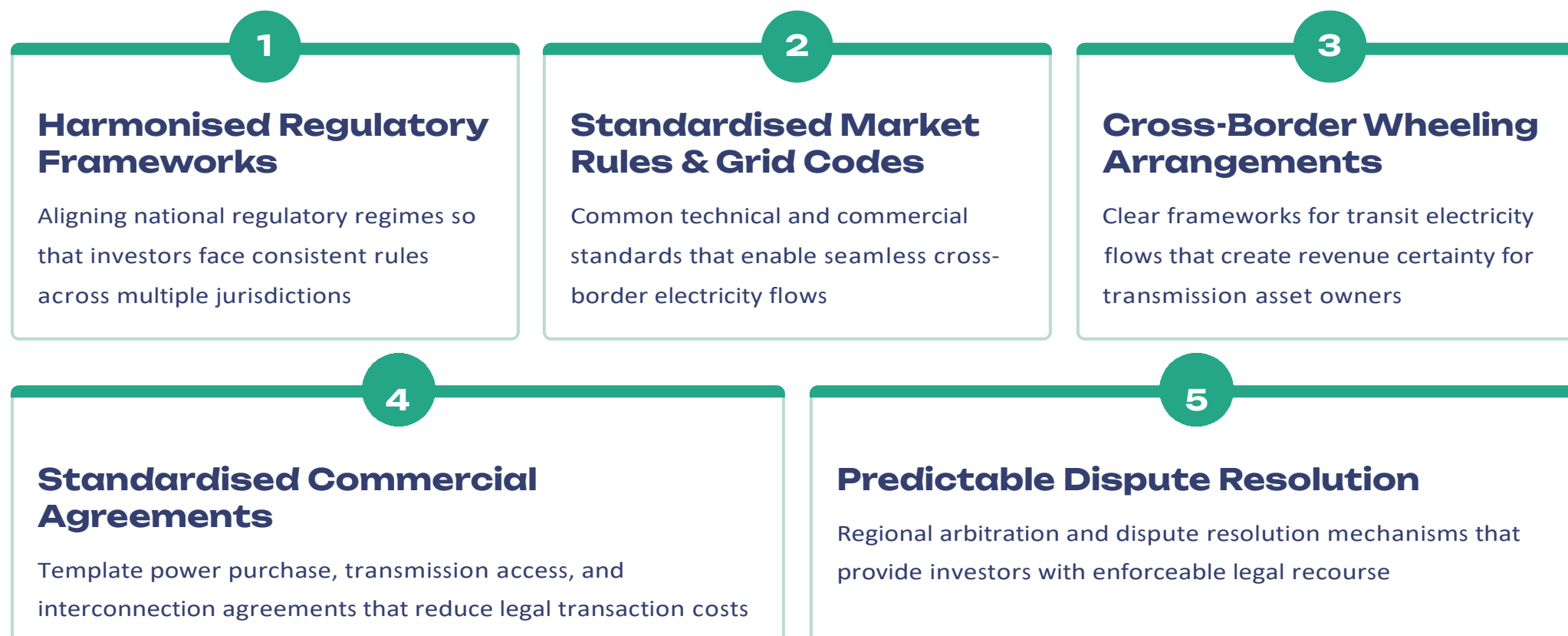
This transition does not eliminate the role of governments or development banks. They remain essential particularly in providing credit enhancement, anchor financing, and policy certainty. However, their role evolves from being the primary source of capital to being architects of the enabling environment and catalytic co-investors who crowd in private capital at scale. AfSEM's market architecture is the mechanism through which this transition is achieved.

De-Risking Cross-Border Infrastructure

RISK ARCHITECTURE

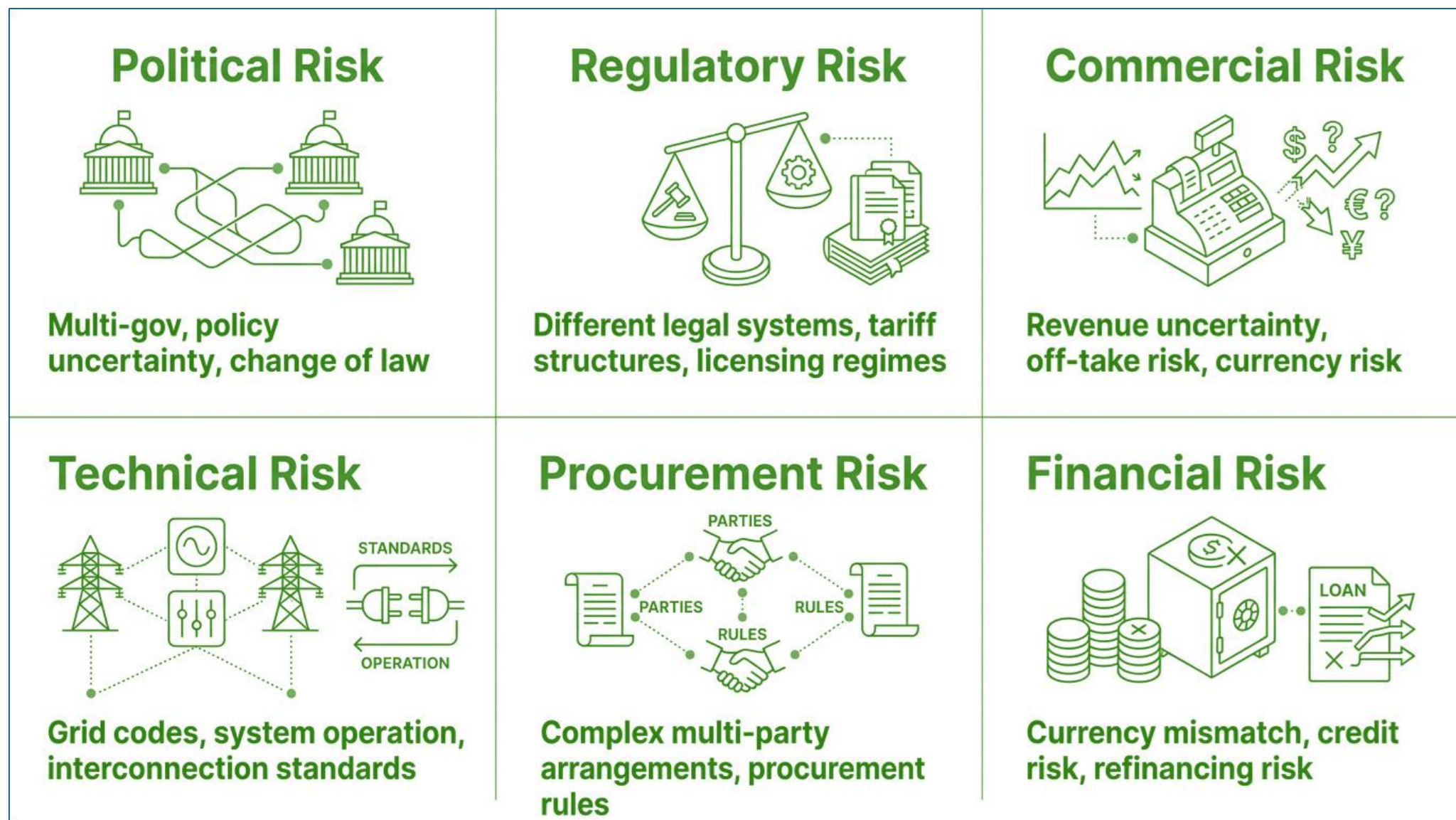
Cross-border transmission projects are among the most complex infrastructure investments anywhere in the world, and the complexity in Africa extends far beyond engineering. These projects involve multiple governments, multiple regulators, different legal systems, different tariff structures, currency risks, political risks, revenue uncertainty, and profoundly complex procurement arrangements. It is no surprise that many viable cross-border projects have stalled at the preparation stage, unable to achieve the bankability required to attract long-term finance.

AfSEM is working with Regional Economic Communities (RECs), Power Pools, national regulators, and development partners to systematically reduce these risks. The approach is comprehensive, addressing regulatory, commercial, political, and operational risks through a coordinated set of reforms that collectively transform the risk profile of cross-border investments. Each reform, taken alone, is valuable. Together, they are transformative.



Reducing regulatory uncertainty is not merely a governance objective, it is a direct financial intervention. Every reduction in perceived regulatory risk translates directly into improved project bankability, lower financing costs, and broader investor participation. AfSEM's risk architecture is therefore one of the most powerful financing tools available for Africa's electricity sector.

The Multi-Dimensional Risk Landscape of Cross-Border Projects



Understanding the full spectrum of risks facing cross-border electricity projects is essential for investors, financiers, and policy makers. AfSEM's enabling environment is specifically designed to address each of these risk categories systematically, creating a continental market where the risk-adjusted return profile of cross-border infrastructure becomes genuinely competitive with other global infrastructure asset classes.

Generation Investment Must Be Regional

REGIONAL RESOURCE LOGIC

One of the most compelling economic arguments for AfSEM's continental market architecture is the uneven distribution of Africa's extraordinary renewable energy resources. The continent possesses some of the world's finest solar, wind, hydro, and geothermal resources, but these resources are not located where electricity demand is greatest. This geographic mismatch between resource endowment and demand centres is not a problem. It is an investment opportunity, but only within the context of a regional market.

Without regional market architecture, each country is forced to plan its electricity system in isolation, often at significantly higher cost, relying on more expensive domestic alternatives rather than accessing the least-cost regional resource. With AfSEM's continental market framework, generation investment can be optimised across the entire continent, directing capital to the locations where renewable resources are most abundant and where generation costs are lowest, and then transmitting that electricity to where it is needed.

Africa's Stranded Resource Wealth

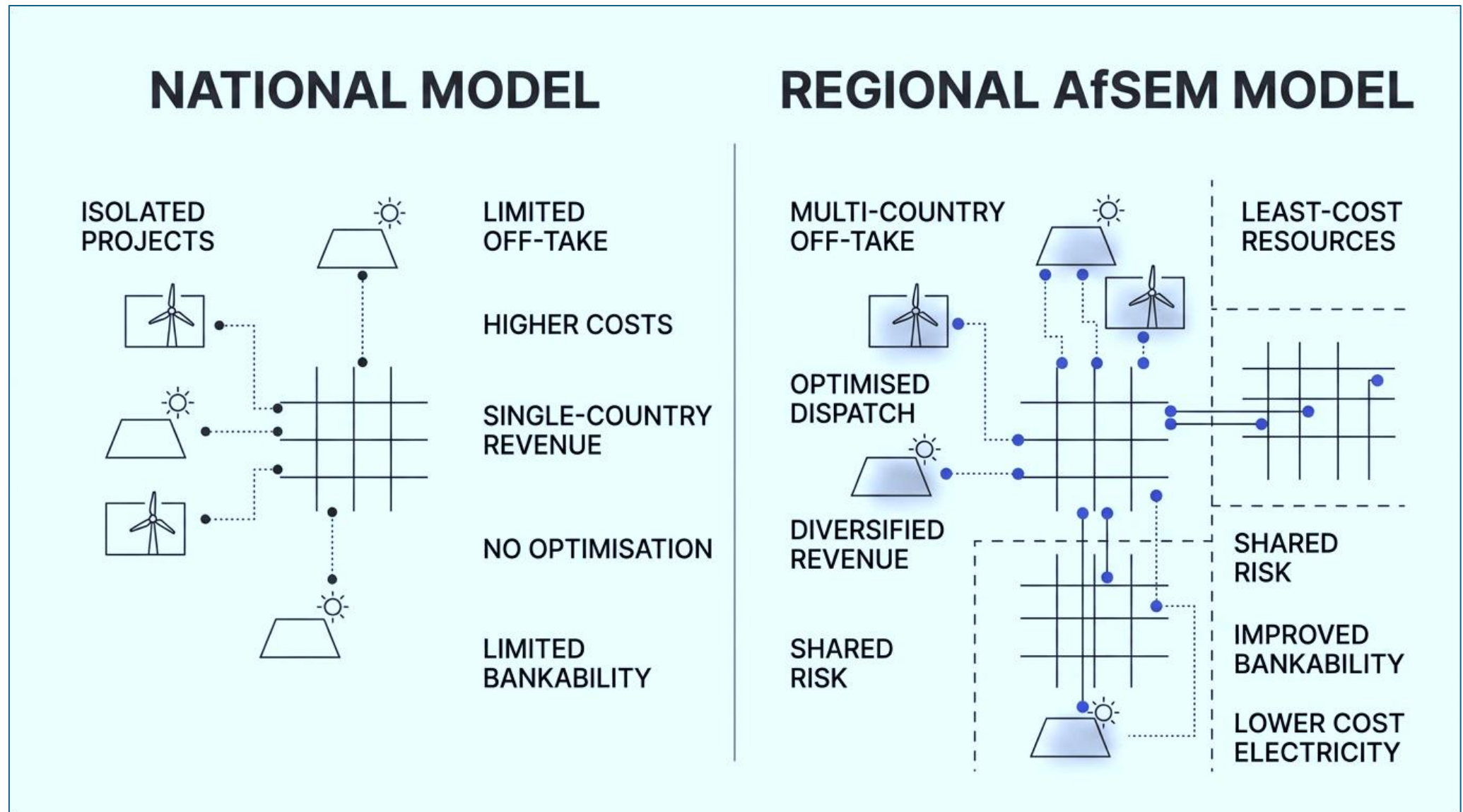
- The Congo Basin holds the world's largest untapped hydropower potential
- The Sahel and North Africa possess world-class solar irradiance
- Eastern African Rift Valley holds enormous geothermal potential
- Southern and East African coastlines offer premium wind resources
- West African gas reserves represent a transitional generation asset

What Regional Markets Enable

- Regional renewable energy markets that optimise resource allocation
- Competitive regional procurement reducing the cost of generation
- Cross-border power purchase arrangements creating revenue certainty
- Regional least-cost generation planning reducing investment risk
- Regional balancing markets enabling variable renewable integration

Larger markets fundamentally improve project economics. A generation project that can sell electricity to multiple countries rather than a single national buyer benefits from a larger, more diversified revenue base, reducing off-take concentration risk and improving bankability. AfSEM's regional market architecture is therefore a direct enabler of generation investment at the scale Africa requires.

Regional Generation: The Economics of Scale



The economics of regional electricity markets are compelling and well-established. Europe's integrated electricity market delivers significant cost savings through cross-border trade, optimised dispatch, and shared balancing reserves. AfSEM is creating the conditions for Africa to realise comparable, and potentially greater, benefits, given the continent's vast untapped renewable resource potential and the significant cost differentials between national isolated systems and an optimised regional market.

Moving Beyond Traditional PPPs

PRIVATE SECTOR ECOSYSTEM

Public-Private Partnerships (PPPs) have been a valuable tool for bringing private capital into Africa's electricity sector, and they remain important. AfSEM fully recognises and supports the continued role of well-structured PPPs in financing generation, transmission, and distribution assets. However, AfSEM's ambition extends significantly beyond the traditional PPP model, and this distinction is critical for investors and policy makers to understand.

The traditional PPP model is primarily a project-level mechanism, a bilateral arrangement between a government and a private developer for a specific asset. It does not, by itself, create a market. It does not, by itself, harmonise regulatory frameworks across borders. It does not, by itself, enable regional electricity trading or allocate risks across multiple jurisdictions. AfSEM is building the market ecosystem within which PPPs and many other forms of private investment can operate at scale and with confidence.

Success at the continental scale will not depend simply on PPP legislation at the national level. It will depend on creating investment-ready markets characterised by policy certainty, regulatory harmonisation, market transparency, credit enhancement, bankable project preparation, stable revenue mechanisms, efficient regional institutions, and predictable governance, the full suite of conditions that AfSEM is systematically building.



Policy Certainty

Long-term policy commitments that give investors confidence in the stability of the regulatory and commercial environment over the life of their investment



Regulatory Harmonisation

Aligned national and regional regulatory frameworks that reduce complexity and transaction costs for investors operating across multiple markets



Credit Enhancement

Partial risk guarantees, first-loss facilities, and other instruments that improve project credit quality and access to commercial finance



Bankable Project Preparation

Early-stage technical and financial advisory support that ensures projects are structured to meet international capital market standards

What Investment-Ready Markets Look Like

The concept of an "investment-ready market" is not abstract. It has specific, measurable characteristics that sophisticated investors assess before committing capital to long-duration infrastructure projects. AfSEM is deliberately engineering these characteristics into Africa's continental electricity market, creating, for the first time, a genuinely investment-ready market at continental scale.

Transparent Price Discovery

Market participants can observe electricity prices, transmission tariffs, and ancillary service costs through open, well-governed market platforms. Price transparency reduces information asymmetry and enables investors to model revenue projections with confidence.

Enforceable Commercial Agreements

Standardised power purchase agreements, transmission access contracts, and interconnection agreements are underpinned by regional dispute resolution mechanisms that provide genuine legal recourse across borders.

Stable Revenue Mechanisms

Regulated transmission tariffs, capacity payments, and long-term off-take contracts provide investors with predictable, long-duration revenue streams that match the economics of infrastructure investment.

Efficient Regional Institutions

Well-governed, technically capable regional institutions, power pools, regulatory bodies, and market operators, that can implement market rules consistently and respond efficiently to market developments.

AfSEM's Strategic Investment Portfolio

INVESTMENT SECTORS

AfSEM's continental market architecture is designed to unlock investment across a broad and strategically important portfolio of electricity sector assets. These are not incremental improvements, they represent the foundational infrastructure upon which a modern, integrated, low-carbon African electricity system will be built. Each investment category is essential; together they constitute a comprehensive programme of continental energy transformation.



Cross-Border Transmission Infrastructure

New and upgraded interconnectors linking national grids, enabling regional electricity trade, improving security of supply, and creating the physical backbone of the continental electricity market.



Regional Renewable Energy Projects

Utility-scale solar, wind, hydro, and geothermal projects sized to serve regional rather than purely national markets, benefiting from larger off-take bases and improved project economics.



Battery Energy Storage Systems (BESS)

Grid-scale storage facilities that enable higher penetrations of variable renewable energy, provide system flexibility, and support the reliable operation of regional electricity markets.



Green Hydrogen Value Chains

Production, storage, and export infrastructure for green hydrogen, leveraging Africa's world-class renewable resources to create a new, high-value clean energy export industry.

Grid Modernisation & Digitalisation

A modern, integrated continental electricity market requires digital infrastructure as much as it requires physical infrastructure. AfSEM's investment vision encompasses the full modernisation of Africa's electricity grids, from advanced metering infrastructure and smart grid technologies to digital market platforms, real-time grid management systems, and cybersecurity frameworks. Grid modernisation is not merely a technological upgrade; it is a prerequisite for the transparent, efficient, and well-governed electricity market that investors require.

Digital platforms enable transparent electricity trading, real-time system operation, efficient congestion management, and accurate settlement, all of which are essential for investor confidence and market efficiency. They also create the data infrastructure that regulators need to monitor market behaviour, enforce compliance, and protect consumers. AfSEM's approach to grid modernisation is therefore integral to its broader investment facilitation mission, ensuring that Africa's continental electricity market is not only physically connected but digitally intelligent.

Advanced Metering

Smart meters enabling real-time data and demand management

Digital Trading Platforms

Transparent market platforms for cross-border electricity trade

Real-Time Grid Management

Automated systems for cross-border grid coordination and dispatch

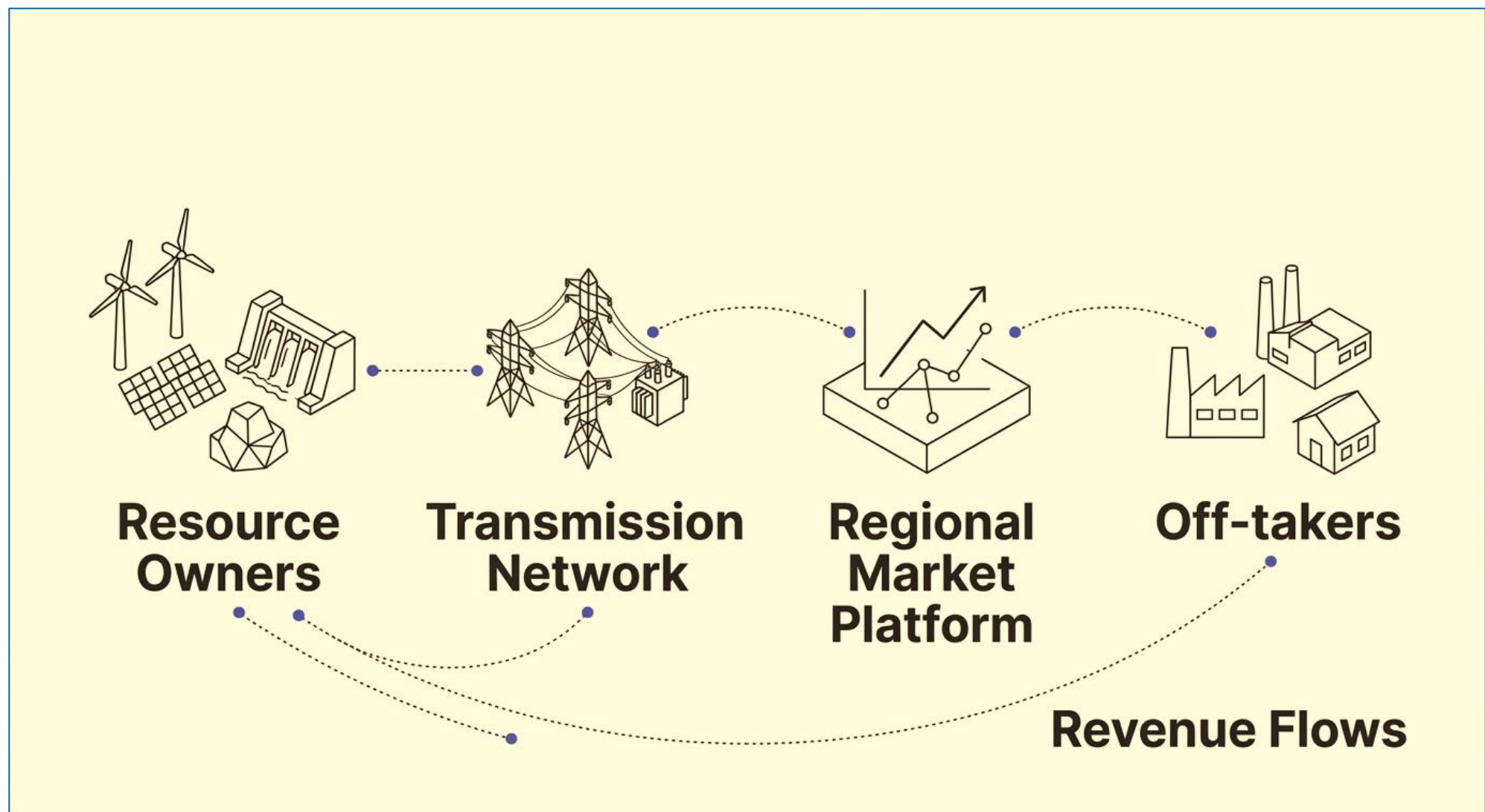
Cybersecurity Frameworks

Regional standards protecting critical energy infrastructure

Regional Electricity Trading: The Commercial Engine

MARKET OPERATIONS

Regional electricity trading is both a product of AfSEM's market architecture and one of its most powerful investment enablers. As cross-border interconnections expand and regional market rules are harmonised, electricity trade across Africa's regional power pools will grow significantly, creating revenue streams for transmission asset owners, reducing generation costs for buyers, and improving energy security for participating nations. This trading activity is the commercial engine that justifies and sustains the underlying infrastructure investment.



AfSEM's regional balancing markets will further enhance the value of electricity trading by enabling countries to share reserves, balance variable renewable generation, and optimise dispatch across a much larger resource base than any single national market can provide. This dramatically improves the economics of renewable energy integration, reducing the need for expensive backup capacity and storage at the national level while improving reliability across the region.

AfSEM's Alignment with Africa's Strategic Frameworks

AfSEM does not operate in isolation from Africa's broader strategic agenda. Its continental market architecture is deliberately aligned with, and directly supports the most important strategic frameworks guiding Africa's development in the 21st century. This alignment is not merely rhetorical; it is structural. AfSEM's success will directly advance the objectives of each of these frameworks in measurable, concrete ways.



The convergence of these strategic frameworks creates a powerful policy mandate for AfSEM's continental market architecture. Investors and development partners can be confident that AfSEM's objectives are deeply embedded in Africa's official development agenda at the continental level, providing the long-term policy commitment and institutional backing that long-duration infrastructure investments require.

The New Question for Africa's Electricity Future

STRATEGIC TRANSFORMATION

Africa's electricity future will no longer be determined by who can build infrastructure. Engineering capacity, construction capability, and technical expertise are available, and increasingly so. The determining factor will be who can do something far more complex and far more consequential: structure regional investment opportunities in ways that attract institutional capital; allocate risks appropriately across multiple governments, investors, and counterparties; mobilise patient, long-term capital from pension funds, sovereign wealth funds, and infrastructure investors; develop bankable projects that meet international capital market standards; operate integrated regional markets with efficiency, transparency, and good governance; and deliver reliable electricity to households, businesses, and industries at the lowest possible cost.

This is precisely the transformation that AfSEM is enabling; and it is why AfSEM represents the most consequential institutional development in Africa's electricity sector in a generation.

Structure Regional Investment Opportunities

Developing pipeline of bankable cross-border projects attractive to institutional capital markets

Mobilise Institutional Capital

 Creating the market conditions that allow pension funds, sovereign wealth funds, and infrastructure investors to deploy capital with confidence

Allocate Risks Appropriately

Assigning political, regulatory, commercial, and construction risks to the parties best placed to manage them

Operate Integrated Regional Markets

 Running transparent, efficient, and well-governed electricity markets that serve multiple countries simultaneously

AfSEM's Strategic Vision for Investment

AfSEM is evolving from a continental electricity market initiative into Africa's premier platform for electricity market integration, investment facilitation, infrastructure de-risking, and sustainable energy financing.

This vision is not aspirational rhetoric. It is grounded in the concrete, systematic work that AfSEM is designed to undertake with Regional Economic Communities, Power Pools, national governments, regulators, development finance institutions, and private sector partners across the continent. The enabling environment AfSEM is building; harmonised market frameworks, strengthened regional institutions, reduced regulatory and commercial risks, and mechanisms for private sector participation, is the foundation upon which a new generation of African electricity investments will be built.

Energy Security

Diversified regional supply and interconnected grids that reduce dependence on single national sources and improve resilience to supply disruptions

Affordability

Optimised regional dispatch and competitive markets that reduce the cost of electricity for households, businesses, and industries across the continent

Climate Resilience

Accelerated deployment of renewable energy and grid flexibility that reduces Africa's carbon footprint while strengthening resilience to climate impacts

Industrialisation

Reliable, affordable electricity that enables manufacturing, agro-processing, mining, and digital industries to grow and compete globally

Call to Action for Investors, Financiers & Development Partners

PARTNERSHIP OPPORTUNITY

AfSEM represents a once-in-a-generation opportunity for investors, financiers, and development partners to participate in the foundational transformation of Africa's electricity sector. The market architecture being built today will shape the continent's energy landscape for decades. Those who engage now, as partners in the development of enabling frameworks, as co-investors in project preparation facilities, as providers of credit enhancement, or as long-term infrastructure investors, will be positioned at the centre of Africa's continental electricity market as it scales.

The investment case is compelling. Africa's electricity demand will grow dramatically over the coming decades, driven by population growth, urbanisation, industrialisation, and the digital economy. The continent's renewable energy resources are among the world's finest. The strategic policy mandate, from Agenda 2063 to the AfCFTA to the SDGs, provides long-term certainty of direction. And AfSEM is systematically removing the market failures, regulatory uncertainties, and structural barriers that have historically prevented capital from reaching viable projects.



Engage as a Development Partner

Support AfSEM's market architecture development through technical assistance, capacity building, and institutional strengthening across Regional Economic Communities and Power Pools



Co-invest in Project Preparation

Provide early-stage funding for the technical and financial preparation of cross-border transmission, generation, and storage projects to bring them to bankability



Provide Credit Enhancement

Deploy partial risk guarantees, first-loss facilities, and concessional instruments that improve project credit quality and crowd in commercial and institutional capital



Invest as Long-Term Infrastructure Capital

Commit long-duration equity and debt capital to AfSEM-enabled cross-border infrastructure projects as they reach financial close and enter the investment-ready pipeline



AfSEM's continental market architecture is open, transparent, and designed for broad participation. The opportunity to shape Africa's energy future, and to invest in it, is available to all partners committed to sustainable, long-term infrastructure development.