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ENLARGING THE POOL FOR FINANCING RENEWABLE ENERGY PROJECTS IN NIGERIA: ADOPTING BLENDED FINANCE

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ABSTRACT

Nigeria faces a critical energy access deficit despite abundant renewable energy resources, with millions of households lacking reliable electricity and industries crippled by an unreliable power supply. This paper examines the evolution of renewable energy financing in Nigeria, tracing the history of funding mechanisms from early donor-driven grants to sophisticated climate finance structures. It provides an in-depth analysis of the structural challenges of exchange rate and interest rate volatility, the emergence of green bonds as a domestic financing instrument, and the transformative potential of blended finance. Drawing on comparative evidence from Brazil - a country that has successfully scaled renewable energy through strong public development bank financing - and lessons from Sub-Saharan Africa, the

paper argues that blended finance, deployed through risk-sharing instruments, local currency mechanisms, and concessional capital, offers the most viable strategic path to enlarging the financing pool for Nigeria's renewable energy sector. The analysis integrates concrete examples from InfraCredit's Climate Finance Blending Facility, the Hotspot Network transaction, and the World Economic Forum's investment mobilization framework to illustrate how innovative financing architectures can catalyze private capital at scale. Nigeria requires approximately \$410 billion by 2060 to achieve its energy transition targets^[1], and blended finance is central to closing this gap.

1. INTRODUCTION



Nigeria faces a critical energy access deficit, with millions of people lacking reliable electricity despite the country possessing abundant renewable energy resources. Solar insolation in northern Nigeria reaches 7.0 kWh/m^2 per day, among the highest in the world, and average wind speeds across most regions reach 8.2 m/s , making the country highly suitable for both solar and wind energy generation [2]. Yet non-hydro renewables contribute less than 1% of electricity generation, while gas-fired plants and hydropower dominate the country's energy mix. Nigeria's electricity grid capacity stands at only about 5 GW against an excess daily demand of 9 GW, with an estimated 75 million Nigerians lacking access to electricity entirely [3].

The cost of this energy deficit is staggering. Nigerians spend an estimated \$14 billion annually on independent power generation through petrol- and gasoline-fired generators[4]. Indoor air pollution from biomass burning for cooking, which accounts for 80% of household energy consumption, causes approximately 79,000 deaths annually[5]. Expanding access to safe, clean, and reliable energy is therefore not merely an economic imperative but also a matter of public health and human dignity.

Financing remains the most significant bottleneck to scaling renewable energy investments. Nigeria requires approximately \$410 billion by 2060 to achieve the energy access and transition targets outlined in its Energy Transition Plan, starting with a \$10 billion investment in the first year alone[6]. While climate finance flows have increased in recent years, funding levels remain insufficient relative to the country's clean energy transition needs[7]. Traditional public financing mechanisms are inadequate, and purely private capital remains cautious due to macroeconomic risks, currency volatility, and regulatory uncertainties.

As a result, innovative financing models, particularly blended finance, have emerged as a strategic tool for enlarging the capital pool for renewable energy projects. This article examines the history of renewable energy financing in Nigeria, explains the concept and mechanisms of blended finance, explores comparative international lessons, and evaluates how blended finance can be deployed to transform Nigeria's clean energy landscape.

2. UNDERSTANDING THE HISTORY OF FUNDING RENEWABLE ENERGY PROJECTS IN NIGERIA



Understanding the history of renewable energy financing in Nigeria is essential for appreciating why blended finance has become a necessary evolution. The trajectory reveals a persistent pattern: multiple waves of policy ambition have consistently outpaced the development of effective financing mechanisms.

2.1. CONTRACTUAL BASIS AND CASE LAW

Early renewable energy investments in Nigeria were largely grant-funded and donor-driven, particularly for rural electrification and off-grid solar initiatives. These interventions, primarily by bilateral donors and multilateral development banks, prioritized social impact over commercial returns and thus did not attract sustained private capital^[8]. Between 2008 and 2016, while \$345 million in aid funding was directed to gas-fired power plants, only about \$34 million was channeled to solar electricity development - a ratio of more than 10:1 in favor of fossil fuels^[9]. This dramatic imbalance in aid allocation reflects the systemic bias toward centralized thermal power infrastructure at the expense of renewable energy, and fundamentally explains the negligible integration of renewables into Nigeria's energy infrastructure during this period.

Donor financing during this era was characterized by short project cycles, misaligned incentive structures, and insufficient attention to long-term maintenance and revenue sustainability, factors that limited the multiplier effect of public investment. The Rural Electrification Agency (REA) and earlier programs deployed public capital to extend electrification but operated with limited budgets and fragmented coordination. The result was a landscape dominated by small, isolated interventions that failed to catalyze the scale of private investment needed.

2.2. POLICY FRAMEWORKS:

Over the past two decades, the Nigerian government has rolled out a succession of policies and legislation aimed at overhauling the electricity sector, though success has been limited^[10]. Key milestones include the Electric Power Sector Reform Act (2005), which triggered the privatization process; the Renewable Energy Masterplan (approved 2012), which set targets of 23% renewable electricity by 2025 and 36% by 2030; the Nigeria Renewable Energy and Energy Efficiency Policy (NREEEP, 2015); the National Renewable Energy Action Plan (NREAP, 2016) with its Vision 30:30:30 target of 30 GW of renewable energy by 2030; and the Sustainable Energy for All (SE4All) Action Agenda (2016).

Despite the proliferation of policy and regulatory reforms, the sector has continued to face significant operational and financial challenges. Critics of the privatization process argue that weaknesses in asset valuation, investor selection, capitalization requirements, and post-privatization regulatory enforcement contributed to suboptimal outcomes in parts of the sector [11]. A 2017 report by the Socio-Economic Rights and Accountability Project (SERAP) estimated that Nigeria lost over N11 trillion to corruption in the power sector between 1999 and 2017 [12]. The power sector received bailouts of over N1.2 trillion between 2015 and 2018. NREEEP failed to provide sufficient detail on how financing would be mobilized, and commentators have argued that there was insufficient political will to implement the policy's more ambitious provisions consistently [13]. The more recent Nigeria Climate Change Act (2021), Energy Transition Plan (2022), and Long-Term Low Emissions Development Strategy (2022) signal stronger commitment, but implementation remains the central challenge [14].

2.3. THE RISE OF CLIMATE FINANCE AND DFI ENGAGEMENT

In recent years, climate finance flows to Nigeria have increased significantly. Development Finance Institutions such as the World Bank, African Development Bank, and bilateral institutions from the UK, Germany, and France have become increasingly active in providing concessional capital, technical assistance, and credit enhancement for renewable energy projects. The World Bank's Nigeria Electrification Project, launched in 2018 with a \$350 million commitment, targeted clean energy access for 250,000 SMEs, seven universities, and 1.5 million households [15]. USAID's REEEP program provided credit guarantees to domestic financial institutions and leveraged \$2.1 million in financing for renewable energy projects. Germany's GIZ deployed its Nigeria Energy Support Programme (NESP) to provide technical support for mini-grid deployment and assist with solar power purchase agreements [16].

However, financing remains heavily skewed toward concessional and development capital rather than domestic private investment [17]. The gap between

available concessional finance and the scale of investment required highlights the need to mobilize private capital alongside public resources. This is the central rationale underpinning the adoption of blended finance approaches.

2.4. EXCHANGE RATE AND INTEREST RATE VOLATILITY: A STRUCTURAL CONSTRAINT

Exchange rate and interest rate volatility represent the most persistent and severe structural constraints on renewable energy financing in Nigeria. These two forms of macroeconomic instability interact to create a particularly hostile financing environment for long-term infrastructure investment.

The naira has experienced multiple significant devaluations over the past two decades, most recently following the CBN's foreign exchange market reforms in June 2023, when the naira depreciated sharply, with further depreciation in subsequent months. For renewable energy projects, this creates a fundamental currency mismatch: most equipment — solar panels, inverters, wind turbines — are procured in foreign currency, while project revenues are collected in naira. The G20/GIF/IMF (2024) report emphasizes that currency mismatch risks are among the primary factors discouraging foreign investors in emerging markets, particularly where revenues are denominated in local currency while debt obligations are in foreign currency. Nigerian project developers are sometimes compelled to source foreign exchange at black-market rates of more than twice the official rate in order to procure essential equipment, significantly inflating project costs.

With respect to interest rate volatility, Nigeria's monetary policy rate has historically fluctuated sharply in response to inflationary pressures, with the Central Bank of Nigeria raising the benchmark rate to 26.25% by mid-2024 in response to elevated inflation. Such high domestic interest rates make naira-denominated commercial loans prohibitively expensive for renewable energy developers.

A comparison with Brazil illustrates the structural

difference that effective development bank financing can make. Brazil's national development bank, the Banco Nacional de Desenvolvimento Econômico e Social (BNDES), offered concessional finance at interest rates between 7% and 13% with maturities of 10 to 20 years, representing a dramatically more favorable financing environment than Nigerian commercial banks could offer [18]. This below-market public financing enabled Brazil to scale wind power from 247 MW in 2007 to 12,294 MW by 2017, while Nigeria's combined installed capacity of all non-hydro renewables was just 20 MW in the same year [19]. The contrast is stark and instructive: in the absence of a dedicated public development finance mechanism offering long-term concessional capital, Nigeria's renewable energy sector has remained unable to overcome the barrier of prohibitive financing costs.

2.5. GREEN BONDS: AN EMERGING DOMESTIC FINANCING INSTRUMENT

Green bonds have emerged as a significant innovation in Nigeria's sustainable finance landscape, representing a domestic capital market instrument capable of channeling long-term investment into renewable energy and climate-aligned infrastructure. A green bond is a debt instrument whose proceeds are exclusively applied to finance or refinance eligible green projects, with reporting requirements to ensure environmental accountability.

Nigeria issued its first sovereign green bond in December 2017, raising NGN10.69 billion (approximately \$29 million). It represents Africa's first sovereign green bond issuance. The proceeds were allocated to solar power projects, reforestation, and climate-resilient agriculture. A second sovereign green bond of NGN15 billion was issued in 2019 [20][21]. These issuances demonstrated the feasibility of domestic green bond markets in Nigeria and signaled growing government commitment to sustainable finance.

At the corporate level, InfraCredit's Climate Finance Blending Facility pioneered green bond issuances specifically for off-grid renewable energy projects. In February 2019, InfraCredit guaranteed North South

Power Company's (NSP) NGN8.5 billion, 15-year corporate infrastructure green bond for the 600 MW Shiroro Hydropower Plant[22]. This represented the longest local currency green debt issue in sub-Saharan Africa at the time. Building on that track record, North South Power Company subsequently issued another NGN6.2 billion bond in 2020 without requiring a guarantee, attracting seven local pension funds and demonstrating how blended finance can progressively build market confidence [23]. InfraCredit's Climate Finance Blending Facility then facilitated the NGN1.6 billion green debt issue in September 2022 and the NGN1.91 billion green debt issue in June 2023 for the Hotspot Network project — the first certified blended local currency green bonds for off-grid renewable energy in Nigeria [24].

Green certification by recognized bodies such as the Climate Bonds Initiative provides credibility, transparency, and access to ESG-motivated investors who may accept slightly lower yields in exchange for verified environmental impact. Sovereign green bonds also benefit from regulatory incentives: interest earned on Federal Government bonds remains exempt from companies income tax, and the Nigeria Tax Act 2025 extends this exemption to state government bonds, although the equivalent exemption for corporate bonds lapsed when the Companies Income Tax (Exemption of Bonds and Short-Term Government Securities) Order 2011 expired in January 2022 [25]. Advancing green bond markets, project finance models, insurance, and technology risk assessment are crucial to supporting Nigeria's renewable energy sector, and the subsequent development of the InfraCredit model has confirmed this prescription.

Nevertheless, the green bond market in Nigeria remains nascent. Total issuance volumes are modest relative to the scale of investment required, and market liquidity is thin. Deepening the green bond market requires standardized frameworks, capacity building for both issuers and investors, and critically, a pipeline of bankable green projects. Blended finance plays a crucial enabling role: concessional first-loss capital de-risks projects to the point where green bond issuance becomes commercially viable.

3. WHAT IS BLENDED FINANCE?



Blended finance refers to the strategic use of concessional capital, typically from public or philanthropic sources, to mobilize additional private sector investment into development projects. The core principle is that development finance should not replace private investment but catalyze it, by absorbing disproportionate risk or accepting below-market returns in order to make investment attractive to commercial capital providers [26][27].

Blended finance structures combine public funds, grants, guarantees, concessional loans, and private investment to improve project risk-return profiles. The objective is to reduce perceived risks and enhance bankability, that is, the extent to which a project is considered sufficiently credible, secure, and commercially viable to attract financing from lenders and investors.[28]. A project is generally regarded as bankable when its projected revenues are capable of servicing debt obligations, its risks are appropriately allocated and mitigated, and its governance and contractual frameworks give lenders confidence in its long-term performance and stability.

Blended finance instruments are particularly effective in addressing exchange rate risks and broader macroeconomic uncertainties in emerging markets, by

providing currency hedging through concessional capital and enabling local currency financing, thereby mitigating some of the most significant barriers to private investment in jurisdictions such as Nigeria. Blended finance structures use concessional capital from governments and development institutions to incentivize private sector investment in high-risk markets, mitigating barriers of limited liquidity, high interest rates, and perceived political risk [29].

3.1. CORE BLENDED FINANCE MECHANISMS

Blended finance encompasses a range of instruments, each suited to different risk profiles and project stages:

- **First-loss capital:** Concessional investors absorb initial losses in a portfolio or project, protecting commercial investors from the first tranche of default risk and significantly reducing risk exposure of senior creditors.
- **Credit guarantees:** A guarantor, typically a DFI, government agency, or multilateral institution, assumes responsibility for debt repayment in the event of borrower default, enhancing the creditworthiness of renewable energy projects and enabling access to financing at more favorable rates.

- **Risk-sharing facilities:** Public or development finance institutions share financial losses with private investors proportionally, distributing risk across the capital stack.
- **Results-based financing (RBF):** Concessional funds are disbursed only upon verified delivery of pre-defined outputs — such as installed solar capacity or mini-grid connections — reducing moral hazard and improving accountability.
- **Viability gap funding:** Upfront capital grants or subsidies are provided to make projects economically viable that would not otherwise meet minimum return thresholds for private investors.
- **Local currency co-financing:** Concessional capital is deployed in local currency to enable naira-denominated financing, eliminating currency mismatch for projects with local currency revenues.

Because renewable energy projects in Nigeria face a range of distinct commercial, regulatory, currency, and political risks, no single financing instrument is capable of addressing all project constraints. Rather, financing structures must be carefully tailored to the project's technology, stage of development, and risk allocation profile, often through a combination of instruments such as concessional capital, mezzanine financing, political risk insurance, and partial risk guarantees.

3.2. LESSONS FROM BRAZIL: THE CASE FOR A DEDICATED PUBLIC FINANCE INSTITUTION

The contrast between Nigeria and Brazil in renewable energy financing offers powerful lessons for the design of blended finance architecture. Brazil's remarkable success in scaling renewables, wind power growing from 935 GWh in 2005 to over 21,626 GWh by 2015, was driven primarily by its national development bank, BNDES, which alone invested over \$78.8 billion in renewables between 2009 and 2017, representing 73% of total debt finance to renewable energy projects over the period [30].

BNDES's model was not primarily one of de-risking for private capital. It acts as a universal financier of renewable energy at scale, offering direct concessional finance of up to 80% of total project costs at interest rates between 7% and 13% with maturities of 10 to 20 years [31]. This approach was coupled with local content requirements that attracted major global manufacturers such as Siemens, General Electric, and Vestas to establish manufacturing bases in Brazil, thus building domestic industrial capacity alongside energy capacity. Brazil also deployed feed-in tariffs under PROINFA (2002), guaranteeing minimum 20-year power purchase agreements with renewable developers at pre-determined rates, and pioneered competitive auction mechanisms from 2007 that drove successive rounds of price reduction, with the March 2018 solar auction averaging \$35.2/MWh, 62.2% below the ceiling price [32].

For Nigeria, the Brazil comparison points to the need for a dedicated domestic public financial institution that can blend external concessional finance with internal resources to provide long-term, affordable financing to renewable energy developers. Energy scholars have proposed empowering Nigeria's Bank of Industry (BoI) to play this role of acting as the channel for donor financing; and blending it with domestic resources, including the contributory pension scheme valued at N5.14 trillion, to provide long-term concessional loans to renewable energy enterprises. A comparable model has been successfully implemented by Bangladesh's IDCOL, which blends grants and credit from development agencies with domestic funding to support over 60 partner organizations delivering solar and biogas systems to 18 million households [33]. This model of domestic financial intermediation, adapted to the Nigerian context, could provide the institutional backbone for a scalable blended finance architecture.

4. ADVANTAGES OF BLENDED FINANCE FOR NIGERIA'S RENEWABLE ENERGY INDUSTRY



4.1. RISK MITIGATION

Blended finance reduces the financial and operational risks associated with renewable energy projects through first-loss capital, guarantees, and concessional loans. In Nigeria, where projects face regulatory uncertainty, currency volatility, and nascent market conditions, these risk-sharing mechanisms protect private investors from downside exposure, making previously unbankable projects viable [34][35].

4.2. CROWDING-IN PRIVATE CAPITAL

By strategically absorbing early-stage or high-risk tranches of investment, blended finance mobilizes private sector participation that would otherwise be absent. The Climate Finance Blending Facility's 50:50 co-financing structure, matching concessional subordinated debt with domestic institutional investment, exemplifies how blended finance can crowd in private capital at a 1:1 or better ratio. The Hotspot Network transaction, a blended local currency green bond financing solar-powered telecommunications base stations across northern Nigeria that is examined in detail later in this article, mobilized nine domestic institutional investors for the first time in a solar-powered base stations project, demonstrating the market-building dimension of blended finance beyond individual project financing [36][37].

4.3. LOCAL CURRENCY MOBILIZATION

Blended finance facilitates local currency financing, aligning project debt obligations with naira-denominated revenue streams and reducing currency mismatch risks. This is perhaps the most immediate advantage in the Nigerian context, where exchange rate volatility is identified as a primary barrier to renewable energy investment. Additionally, by building the track record and credit history of domestic institutional investors in renewable energy, blended finance creates a self-reinforcing cycle of market confidence [38].

4.4. MARKET DEVELOPMENT AND INSTITUTIONAL CAPACITY BUILDING

Beyond individual projects, blended finance contributes to structural market development. Technical assistance accelerator programs, including the AfIDA Catapult Accelerator and Academy model[39], serve as essential complements to financial blended finance instruments, building local capacity in project finance, bankability assessment, energy auditing, carbon financing, and solar project management. This institutional capacity building reduces the reliance on expensive external consultants and shortens project development timelines, addressing what AfIDA identifies as the

“execution gap” - the fact that a simple solar project in Africa can take more than nine years to develop, compared to a global average of two to four years [40].

4.5. COMMUNITY SUSTAINABILITY AND SOCIAL ACCEPTANCE

Evidence from Sub-Saharan Africa demonstrates that blended finance projects incorporating community ownership and participatory governance models exhibit higher long-term resilience and lower operational disruption. Solar microgrids funded through blended finance and managed with local cooperative participation have demonstrated significant improvements in electricity reliability and affordability [41]. For Nigeria, embedding community engagement within blended finance structures through revenue-sharing mechanisms, local employment commitments,

and co-investment arrangements strengthens project sustainability and social license to operate, reducing the risk of community opposition that can derail infrastructure projects.

4.6. POLICY ALIGNMENT AND SDG CONTRIBUTION

Blended finance frameworks align with Nigeria’s Nationally Determined Contributions, its Energy Transition Plan (which targets universal energy access by 2030 and a carbon-neutral energy system by 2060), and with the Paris Agreement’s climate objectives [42][43]. High-level policy dialogues increasingly recognize blended finance as central to Nigeria’s energy transition [44].



5. HOW BLENDED FINANCE CAN BE DEPLOYED IN RENEWABLE ENERGY FUNDING IN NIGERIA



There are three interconnected elements that blended finance must address to improve capital availability and access in Nigeria: (i) the currency of debt, (ii) the interest rate of financing, and (iii) risk diversity. The following mechanisms address each of these dimensions.

5.1. RISK-SHARING AND CREDIT GUARANTEES

Risk-sharing mechanisms operate by distributing potential financial losses among multiple stakeholders, lowering the burden borne by any one investor. In Nigeria, where foreign exchange risk and policy uncertainty can significantly impact project cash flows, credit guarantees can be particularly transformative. A partial credit guarantee covering foreign exchange exposure protects a lender against naira devaluation; a political risk guarantee shields investors from losses resulting from abrupt changes in energy policy, tariff structures, or regulatory frameworks [45].

InfraCredit provides a compelling operational example. Sponsored and backed by the Nigeria Sovereign Investment Authority (NSIA), GuarantCo, KfW, Africa Finance Corporation (AFC), African Development Bank

(AfDB), and InfraCo Africa, InfraCredit has over six years facilitated first-time access to local currency debt finance with up to a 20-year tenor from the domestic bond market for infrastructure projects totaling NGN145 billion (\$315 million) [46]. In 2024, InfraCredit secured a US\$30 million blended local currency co-financing facility from British International Investment (BII) to support decentralized renewable energy projects [47]. The World Economic Forum (2023) identifies InfraCredit's model as a replicable template for building a local currency facility that reduces overall credit risk, lowers capital costs, and attracts domestic institutional capital to clean energy projects with higher perceived risk.

The Clean Technology Fund (CTF) - jointly implemented by the World Bank and AfDB with a \$250 million grant - has similarly provided concessional debt to Nigerian solar projects, though, as Isah notes, high transaction costs and insufficient support from local financial intermediaries limited its full impact [48]. This experience highlights the importance of pairing credit enhancement instruments with strong local institutional capacity, a lesson that the InfraCredit model directly addresses.

5.2. LOCAL CURRENCY FINANCING

One of the most significant financial risks facing renewable energy projects in Nigeria is currency mismatch. Local currency financing mitigates this risk by denominating debt in naira, thereby aligning repayment obligations with local revenue streams. Within a blended finance framework, concessional capital from DFIs, climate funds, or public agencies can be strategically deployed to absorb higher-risk tranches or provide subordinated capital, reducing the risk exposure of domestic commercial lenders and enabling them to extend naira-denominated loans at more favorable terms [49][50].

A local currency facility that enables developers to finance projects in naira while accessing dollars at the official rate would dramatically reduce cost pressures arising from access to foreign exchange. The International Finance Corporation has demonstrated the feasibility of such mechanisms through long-term naira swaps on the back of international loans, fostering an understanding of foreign exchange risk among Nigerian financial institutions and inspiring other lenders to provide local currency funding [51].

The Hotspot Network transaction demonstrates the practical impact of local currency financing within a blended structure. The NGN1.91 billion green debt issue carried a blended interest rate of 9.75% per annum, substantially below prevailing commercial lending rates, with a 7-year tenor and a 2-year principal moratorium, made possible by the FCDO-funded Climate Finance Blending Facility's subordinated first-loss capital [52]. This rate, while still higher than what BNDES offers in Brazil, represents a significant improvement over the 20%+ rates available from Nigerian commercial banks, and demonstrates that blended finance can meaningfully reduce the effective cost of capital.

5.3. RESULTS-BASED BLENDED FINANCE

Results-Based Blended Finance (RBBF) ties concessional support to the achievement of pre-defined, verifiable outcomes, such as mini-grid connections, installed solar

capacity, or GHG emission reductions. By disbursing funds only after performance verification, RBBF reduces moral hazard, improves accountability, and strengthens revenue predictability for private investors. In Nigeria, where off-grid and distributed energy markets face demand uncertainty and regulatory risk, RBBF can enhance bankability, attract private capital, and ensure that public or donor resources achieve measurable development impact [53].

InfraCredit's Climate Finance Blending Facility (CFBF) requires participating projects to report on energy access connections, installed capacity, private finance mobilized, jobs created, and GHG emissions reduced — aligning financial disbursements with development impact and ensuring transparent accountability to funders [54]. Within the public sector, the Rural Electrification Agency's Performance-Based Grant programme under the World Bank-funded Nigeria Electrification Project applies the same logic, disbursing grants to mini-grid and solar home system developers only upon verified connections, and stands as one of the country's largest results-based instruments for de-risking distributed renewable energy investment [55].

5.4. INNOVATIVE MINI-GRID FINANCING

Mini-grid projects in Nigeria often struggle with high upfront costs, long payback periods, and fragmented revenue streams. The off-grid solar market has grown at an average rate of 22% annually over the past five years, creating a \$9.2 billion annual market investment opportunity for solar mini-grids [56]. Blended finance can deploy layered capital stacks, first-loss guarantees, concessional loans, and performance-based subsidies to reduce perceived risk for private developers.

InfraCredit's Clean Energy Funding Programme (CEFP) demonstrates the aggregation approach: it has originated a project pipeline of over \$180.7 million (NGN equivalent) requiring the mobilization of at least NGN41.6 billion (\$90 million) of private domestic institutional capital, targeting the construction of 30 MW of isolated off-grid renewable energy projects across 580 unserved communities in 32 states in Nigeria [57]. The Darway

Coast Nigeria green debt issue — financed through a blended instrument as the first-ever certified blended local currency green debt issue for a solar mini-grid project in Nigeria — serves as a model for how this aggregation approach works in practice: the blended facility's subordinated first-loss capital unlocked InfraCredit's AAA-rated guaranteed senior green bonds, crowding in first-time matching investments from six domestic institutional investors for a project constructing 526.1 kW of isolated solar mini-grids in six grid-free communities.

5.5. DOMESTIC RESOURCE MOBILIZATION

Mobilizing domestic capital is critical to achieving sustainable renewable energy growth in Nigeria. Isah (2019) highlights the vast potential of the contributory Nigerian pension scheme valued at N5.14 trillion as an untapped source of long-term capital for infrastructure investment. Similarly, the Central Bank of Nigeria's track record in deploying risk-sharing mechanisms for agricultural lending through NIRSAL providing N65 billion in guaranteed loans to over 630 businesses by 2017 demonstrates that targeted public instruments can successfully mobilize domestic institutional capital into high-priority sectors.

The Hotspot Network transaction demonstrated the viability of this approach for renewable energy: the Climate Finance Blending Facility's subordinated first-loss capital unlocked InfraCredit's AAA-rated senior green bonds, attracting first-time matching investments from nine domestic institutional investors, including Leadway Assurance, Linkage Assurance, AllCO Insurance, and Tangerine Life [58]. This crowding-in of domestic institutional capital is particularly significant because pension funds and insurance companies are better suited to manage long-duration liabilities well-

suited to long-term infrastructure financing, but typically require credit enhancement to a level consistent with their regulatory risk appetite. Financing Nigeria's renewable energy future must increasingly rely on domestic capital mobilization, including pension funds, local banks, and sovereign wealth instruments. Blended finance provides the enabling architecture for this domestic mobilization.

5.6. CAPITAL MARKET DEVELOPMENT AND GREEN BOND ISSUANCE

Blended finance can stimulate Nigeria's capital markets by supporting the issuance of renewable energy bonds, green infrastructure funds, and securitized energy assets. InfraCredit's AAA-rated green bonds, certified by the Climate Bonds Initiative, provide credibility, transparency, and access to ESG-motivated investors, thereby further broadening the investor base beyond those focused purely on financial returns. Enhancing the issuance of corporate infrastructure debt instruments represents a key pathway, with blended finance acting as a facilitator, to attract investment from insurance firms, pension funds, and other institutional players, thereby deepening Nigerian capital markets.

The progressive reduction of dependence on credit enhancement is itself a critical market-building objective. The North South Power Company (NSP) example, which issued its second bond in 2020 without an InfraCredit guarantee, after having established a credit history with the guaranteed 2019 issuance, demonstrates that blended finance can create the conditions for self-sustaining private investment. This graduation pathway is the most important long-term contribution of blended finance to Nigeria's energy transition [59][60].

6. CASE STUDY: THE INFACREDIT CLIMATE FINANCE BLENDING FACILITY AND THE HOTSPOT NETWORK TRANSACTION

The Climate Finance Blending Facility (CFBF) represents the most instructive real-world example of blended finance applied to renewable energy in Nigeria. Established in May 2022, the Facility is a blended first-loss multi-donor facility seeded with £10 million (approximately USD 11.3 million) concessional funding from the UK FCDO, with InfraCredit serving as co-financing partner. As of its most recent transactions, the Facility had attracted an additional US\$52.7 million in co-funding and identified a project pipeline of US\$126 million across 35 Nigerian states and six geo-political zones [\[61\]](#)[\[62\]](#).

In practice, the Facility funds more projects in local naira than commercial markets alone would support, and InfraCredit's model has become a leading example of how blended, local-currency financing can be scaled to enable the growth of community-based renewable energy developers in Nigeria.

The Hotspot Network transaction provides a detailed illustration of how these pillars translate into practice. Hotspot Network Limited established a Special Purpose Vehicle (Micropolitan Mobile Connectivity Limited) to raise local currency finance from the debt capital markets, constructing solar-powered base stations in 120 communities across 22 Nigerian states. The project's geographic concentration in underserved northern states, 71 of 120 sites in the North-West zone alone, reflects the explicit development mandate of prioritizing communities with the least grid access [\[63\]](#).

The financing structure demonstrated the mechanics of layered blended capital. The FCDO-funded Facility provided subordinated first-loss concessional capital, reducing the overall risk profile sufficiently for InfraCredit to issue AAA-rated guaranteed senior green bonds subscribed to by nine domestic institutional investors. The NGN1.91 billion green debt issue carried a blended interest rate of 9.75% per annum, a 7-year tenor, and a 2-year principal moratorium, making it the first certified blended local currency green debt issue for a solar-powered base stations project in Nigeria. The project was formally certified as green by the Climate Bonds Initiative under the Solar Sector Criteria of the Climate Bonds Standard [\[64\]](#).

The expected development impact illustrates the multiplier effect of blended finance: 720 temporary and permanent jobs created; 8.34 tonnes of CO₂e GHG emissions avoided; between 9 and 16 million new mobile subscribers and 6 million new data users enabled over 10 years. The project aligns with Nigeria's Nationally Determined Contributions (2021) and contributes directly to SDGs 3, 4, 5, 6, 7, 8, 11, 12, 13, and 17 [\[65\]](#).

The aggregate expected impact of the CFBF as a whole is projected at 244,420 connections with energy access, 34 MW of installed capacity, 1,338 communities served, 7,846 jobs created, 611,688 tonnes of GHG emissions reduced, and N47.0 billion (USD 63.0 million) of private capital mobilized [\[66\]](#). This leverage ratio where £10 million in seed concessional capital catalyzes a USD 126 million project pipeline exemplifies the core logic of blended finance: deploying limited public resources to unlock far larger flows of private capital.

CHALLENGES AND CONSIDERATIONS



7.1. ADDITIONALITY AND CROWDING-OUT RISK

A fundamental challenge in blended finance is ensuring that concessional capital is truly additional - mobilizing private investment that would not otherwise occur - rather than displacing commercial finance in markets where private investors would invest anyway. Poorly designed blended finance can crowd out private investment or subsidize projects that would be commercially viable without public support [67]. The experience of multiple Nigerian donor programs, including USAID's REEEP, demonstrates that well-intentioned interventions can fail to address the binding constraints of high interest rates and short tenors, mobilizing only modest private financing despite significant inputs [68]. Rigorous project selection criteria and transparent governance are essential safeguards.

7.2. TRANSACTION COSTS AND COMPLEXITY

Blended finance transactions involve multiple stakeholders, layered capital structures, and extensive due diligence, creating transaction costs that can be prohibitive for smaller projects. Many clean energy

projects in Nigeria rely on foreign expertise for technical assistance and financing advice, a dependency that increases costs and extends development timelines. Portfolio aggregation, as demonstrated by InfraCredit's CEF, and technical assistance accelerator programs are the primary mechanisms for addressing this challenge by building local capacity while reducing per-project transaction costs.

7.3. REGULATORY AND POLICY RISK

Nigeria's regulatory environment for renewable energy has historically been characterized by uncertainty and inconsistency. The government's failure to honor initial PPA agreements and insisting on \$0.075 per kWh rather than the agreed \$0.115 per kWh undermined investor confidence and exemplifies how policy inconsistency can stall renewable energy development [69]. Brazil's success demonstrates that consistency in the implementation of feed-in tariffs, PPAs, and auction mechanisms, supported by strong political will and inter-agency coordination, is a prerequisite for sustained renewable energy investment growth [70]. The 2023 Electricity Act and ongoing reforms represent positive steps, but their implementation will determine whether Nigeria can provide the stable regulatory environment needed to maximize the impact of blended finance [71].

7.4. CAPACITY CONSTRAINTS

The effectiveness of blended finance depends on the capacity of project developers, financial intermediaries, and regulatory bodies to structure, appraise, and manage complex transactions. The World Economic Forum (2023) identifies skills in project bankability, financial modeling, energy auditing, carbon financing, credit analysis, and solar project management as being in high demand but short supply in Nigeria. Technical assistance programs co-funded by the European Union and Germany's GIZ such as the Nigerian Energy Support Programme provide models for building this capacity systematically, but sustained investment in domestic human capital development is needed at scale.

7.5. SUSTAINABILITY OF CONCESSIONAL CAPITAL

Blended finance is most effective as a transitional instrument. The NSP bond example where the 2020 issuance required no guarantee after the 2019 guaranteed issuance, illustrates the graduation pathway that blended finance should create: using concessional capital to build market infrastructure and investor confidence until commercial finance can flow without public support. Designing blended finance programs with explicit market-building objectives and graduation pathways is essential to prevent permanent dependency on concessional capital and to maximize the long-term impact of limited public resources [\[72\]](#)[\[73\]](#).



CONCLUSION AND RECOMMENDATIONS



Nigeria's renewable energy transition requires a fundamental transformation in its financing architecture. The history of renewable energy financing in Nigeria reveals a persistent gap between policy ambition and effective financing mechanisms - a gap that has left the country with only 20 MW of non-hydro renewable capacity at a time when Brazil, facing broadly similar challenges, had built over 12 GW of wind power alone [74]. The structural challenges of exchange rate volatility, high domestic interest rates, shallow capital markets, and the chronic misallocation of public energy investment toward fossil fuels have collectively constrained renewable energy development.

Blended finance presents a strategic solution to enlarge the financing pool by de-risking investments, mobilizing private capital, and strengthening domestic financial markets. The InfraCredit Climate Finance Blending Facility, the Hotspot Network transaction, and the progressive market-building visible in the NSP bond issuances demonstrate that with the right combination of concessional first-loss capital, credit guarantees, and green bond structures, it is possible to unlock local

currency financing at commercially viable rates, attract domestic institutional investors for the first time, and achieve both financial returns and development impact at scale. The Facility's projected impact - 244,420 energy connections, 34 MW installed, 7,846 jobs, and N47 billion in private capital mobilized - from an initial £10 million seed investment underscores the leverage potential of well-designed blended finance.

Green bonds are an important complementary instrument, creating a domestic capital market pathway that connects renewable energy projects to ESG-motivated investors and on international green finance standards. As green bond markets deepen and transaction track records accumulate, the dependence on concessional capital is expected to diminish, a graduation process that blended finance is specifically designed to enable.

The following recommendations are advanced for policymakers, development finance institutions, and private sector actors:

- The Federal Government, working through the Federal Ministry of Finance and the Central Bank of Nigeria, should establish a dedicated national clean energy development finance facility, modeled on Brazil's BNDES or Bangladesh's IDCOL, that can blend external concessional finance with domestic resources, including pension funds, to provide long-term, affordable naira-denominated financing to renewable energy developers.
- Development finance institutions and concessional donors should scale the Climate Finance Blending Facility and similar instruments, expanding the pipeline of concessional capital available for first-loss positions and credit guarantees to catalyze larger volumes of domestic institutional and commercial investment across all six geo-political zones.
- Policymakers and the Nigerian Electricity Regulatory Commission should strengthen the regulatory and policy environment for renewable energy, including clear mini-grid regulations, transparent and stable tariff frameworks, consistent implementation of PPAs, and reliable feed-in tariff mechanisms, drawing on Brazil's experience of consistent policy implementation as the foundation for investor confidence.
- The Central Bank of Nigeria, alongside development finance institutions, should develop local currency hedging mechanisms, including currency swap facilities and exchange rate stabilization instruments, to reduce the currency mismatch risk that continues to deter foreign investment in naira-denominated projects.
- Development finance institutions and industry associations should invest in domestic capacity building through technical assistance accelerator programs that build local expertise in project finance, bankability assessment, and solar project management, reducing development timelines and transaction costs.
- The Securities and Exchange Commission and the Debt Management Office should deepen the green bond market through regulatory incentives, investor education, standardized green project frameworks, and expedited certification processes, building on the milestone transactions of InfraCredit to create a self-sustaining pipeline of certified green debt issuances.
- Private sector developers, together with development finance institutions, should integrate community ownership and participatory governance into blended finance project structures, incorporating revenue-sharing mechanisms and local employment commitments to strengthen sustainability and social license, building on evidence from Sub-Saharan Africa that community-engaged projects demonstrate significantly higher resilience.

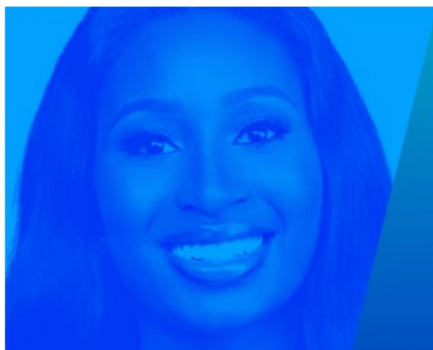
When strategically deployed within a coherent institutional and regulatory framework, blended finance can transform Nigeria's renewable energy landscape by unlocking scalable, sustainable, and inclusive clean energy investments that meet both commercial return requirements and the national imperative of achieving universal energy access and a carbon-neutral economy by 2060.

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