

A SUMMARY GUIDE TO NIGERIA'S SOLAR INVESTMENT LANDSCAPE

Mapping Risks, Returns, and
Financing Options

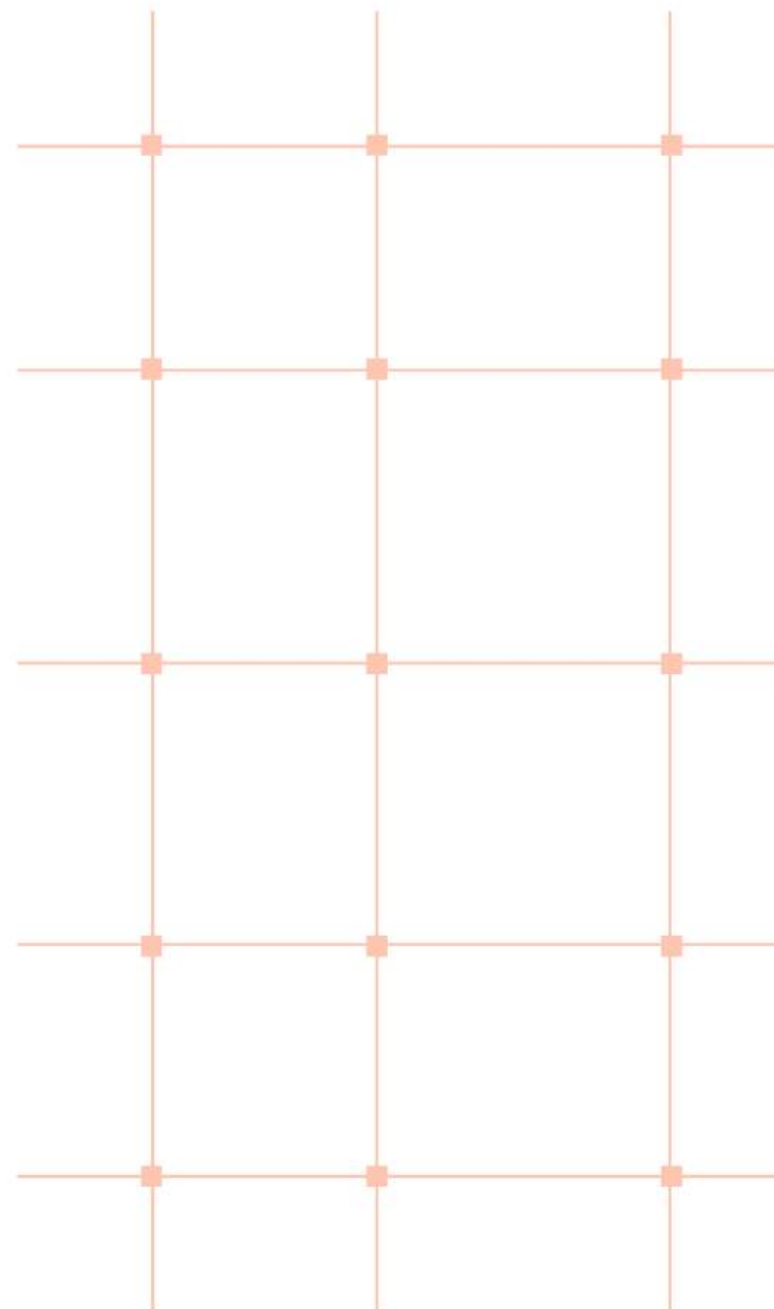


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Executive Summary

Nigeria has one of Africa's largest untapped solar markets, with solar irradiation averaging 4.5–6.0 kWh/m²/day. Demand for reliable, affordable electricity is far greater than what the grid can supply, creating strong opportunities across utility-scale projects, commercial and industrial (C&I) systems, and off-grid solutions.

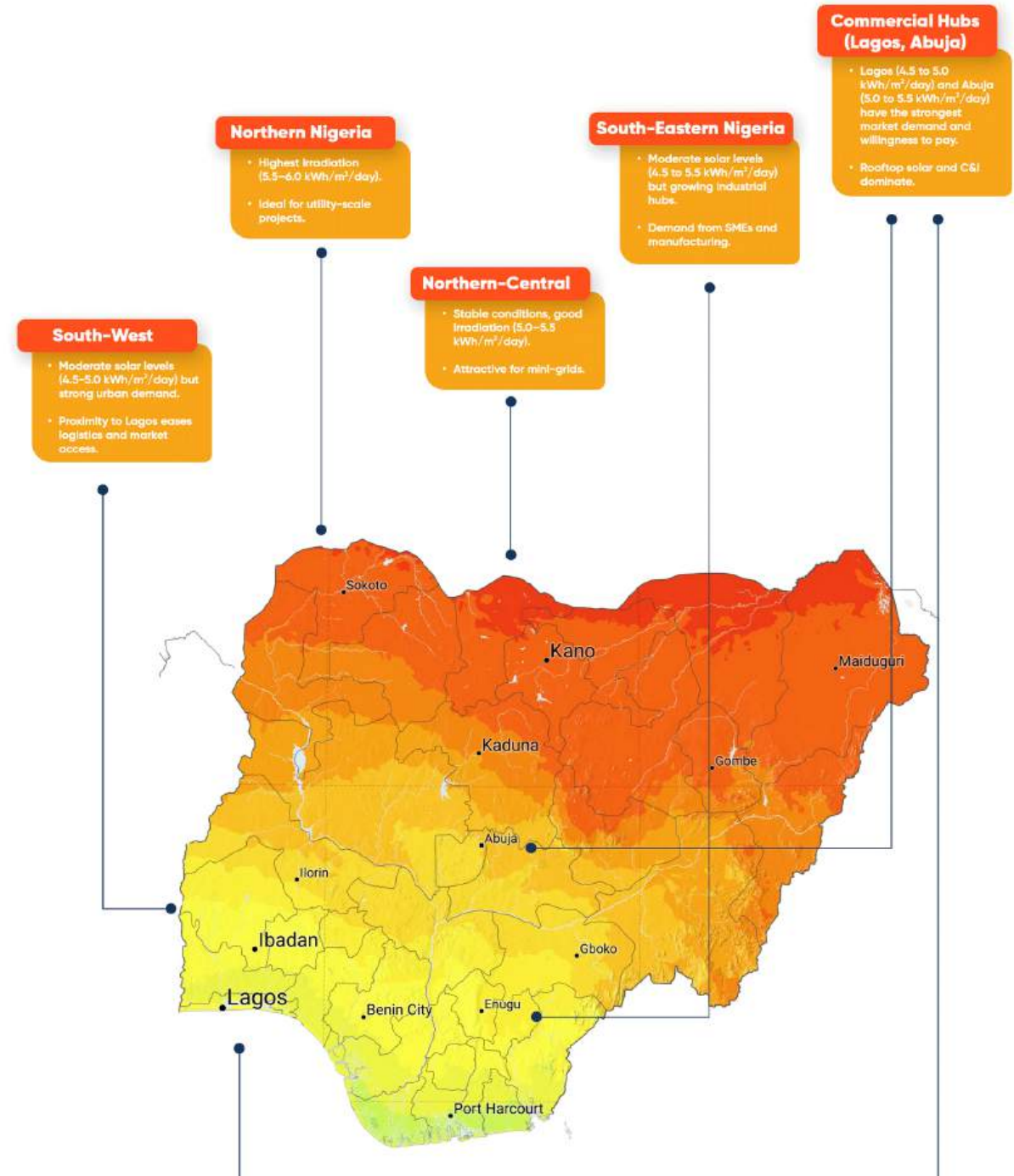
Supportive government policies, international donor programs, and maturing financing instruments—such as green bonds, concessional loans, and PAYG models—are lowering entry barriers. While risks exist (policy shifts, forex volatility, land acquisition, and security), Nigeria's solar sector offers high returns for investors who adopt sound risk-mitigation strategies.



Investment Hotspots

Nigeria's diverse regions present distinct solar investment opportunities, shaped by varying solar irradiation levels, climate, and energy demand. The northern Sahelian states, with some of the highest solar potentials in the country, are best suited for utility-scale farms. The Middle Belt offers stable conditions for mini-grid and mid-scale projects, while the South-West and East combine moderate irradiation with strong industrial and urban demand.

Meanwhile, Lagos and Abuja stand out as commercial hubs where high energy needs and willingness to pay make rooftop and C&I solar especially attractive. Seasonal peaks during the dry months further enhance project viability across the country.



Investment Opportunities

Nigeria's solar market offers opportunities across the full value chain, from large-scale generation to last-mile access and emerging technologies.

While utility-scale, C&I, and off-grid projects represent the most significant and immediate investment potential, other segments like financing, manufacturing, and solar-powered agriculture offer medium-scale opportunities with strong growth prospects. Emerging areas such as solar-powered mobility and R&D remain nascent but high-impact frontiers, where early investors can position themselves ahead of the curve. The table below highlights these opportunities by scale and investor alignment.



Nigeria Solar Investment Opportunities Matrix

Segment	Opportunity Size	Market Drivers	Investor Fit
Utility-Scale Solar Projects	High	- Government-backed programs (e.g. M300 initiative) - Large-scale demand for grid expansion	Institutional investors, Independent Power Producers (IPPs)
Commercial & Industrial (C&I) Solar	High	- Businesses seeking reliable alternatives to unstable grid - Rising diesel costs	Corporates, Private Equity, Project Developers
Off-Grid & Mini-Grids	High	- Rural electrification needs - Donor & government support - Scalable business models	DFIs, Impact Funds, Social Enterprises
Financing Solar Projects	Medium-High	- Robust project pipelines - Growing interest from DFIs, green bonds, and climate funds	Commercial Banks, DFIs, Institutional Investors
Manufacturing & Assembly	Medium-High	- Import dependency - Regional market demand - Potential for industrial hubs	Industrial Investors, PPPs, Export-focused Funds
Solar Irrigation Systems	Medium	- Agricultural productivity and water access - Rural electrification	Agri-Finance, Impact Investors, Development Programs
Solar R&D & Innovation	Medium	Need for cost reduction, efficiency gains, and local adaptation	Venture Capital, Research Partnerships
Solar-Powered Electric Mobility	Emerging	- Rising petrol and diesel costs - EV uptake potential	Venture Capital, Green Infrastructure Funds



Financing Options for Solar Projects in Nigeria

The growth of Nigeria's solar sector is underpinned by a diverse mix of financing sources that support project development, risk mitigation, and market expansion. The table below summarises the key financing options, players, and mechanisms shaping Nigeria's renewable and off-grid energy landscape.

Multilateral institutions and development finance play a catalytic role by providing concessional capital and guarantees, while government-backed incentives reduce upfront costs for developers. Domestic banks gradually expand green loan products, often de-risked through DFI support. At the same time, private equity, venture capital, crowdfunding, and green bonds are opening new investment channels for scalable business models. Finally, consumer-level innovations such as Pay-As-You-Go and tailored bank financing make solar solutions more affordable and accessible to households and SMEs.

Financing Landscape for Renewable and Off-Grid Energy in Nigeria

Category	Instruments & Support	Key Players / Programs	Impact / Use Case
Multilateral & Development Finance Institutions (DFIs/IFIs)	- Loans, grants, guarantees, results-based financing - Policy & technical support (capacity building, governance, best practices)	- World Bank – Nigeria Electrification Project - AfDB – SEFA - IFC – private sector mobilisation - USAID - Power Africa, UNDP, EU, GCF - Results-Based Financing: UEF, DARES	- De-risk investments for private developers - Support off-grid, mini-grid, and C&I projects - Attracts blended finance and crowd-in private capital
Government Incentives & Public Financing	- Subsidies, tax breaks, import duty waivers - Capital subsidies for off-grid developers - Concessional loans	- REF (Rural Electrification Fund) - CBN (e.g., Power & Airline Intervention Fund)	- Reduces cost burden for developers - Expands rural electrification - Encourages local project deployment
Domestic Commercial Banks & Green Finance	- Renewable/green loan portfolios expanding - Supported by DFI guarantees to lower credit risk	- Access Bank – RE financing - Stanbic IBTC – sustainable energy loans - Sterling Bank – clean energy lending	- Provides local currency financing - Supports SMEs and C&I solar developers - Builds domestic green finance capacity
Private Capital & Market Instruments	- Private Equity & Venture Capital – scalable models - Green Bonds aligned with NDCs - Crowdfunding & P2P lending for SMEs & households	- Corporate Green Bonds – ₦32.83bn issued - Sovereign Green Bonds – ₦25.69bn issued - All On (PE/Impact Investment) – backed Salpha Energy - CardinalStone Capital Advisers (PE) – invested in Amergy Solar - Trine (Crowdfunding / Impact Financing) – financed Daystar Power	- Mobilises private capital at scale - Innovative financing for households & SMEs - Expands capital sources beyond DFIs
Consumer-Level Financing Innovations	- PAYG models via mobile money reduce upfront barriers - Retail solar/green energy loans by Nigerian banks	- Lumos Global – PAYG solar home systems - Azuri Technologies – PAYG for low-income households - Access Bank – “Switch to Solar,” up to ₦50m for businesses / ₦10m for individuals, 48-month tenor, ~10% equity - Wema Bank – ₦100k–₦3m consumer loans, ₦1bn SME facility, includes warranties & technical support	- Expands access to low-income households - Removes upfront CAPEX hurdle - Scales adoption of SME & residential solar



Challenges and Risks

The most critical risks for solar investments in Nigeria are regulatory/policy shifts, financial volatility, and security concerns, given their high likelihood and significant impact on project viability.

Technical, legal, and market risks rank as medium–high priorities, requiring proactive supplier vetting, innovative financing models, and contractual safeguards. Social and environmental hazards, while moderate, can escalate if community engagement and compliance are neglected. Overall, investor confidence hinges on strong partnerships, risk-sharing mechanisms (e.g., DFIs, insurance), and localised execution strategies.

Nigeria Solar Investment Risk Matrix

Risk Category	Key Risks	Likelihood	Impact	Mitigation Strategies
Regulatory & Policy	- Policy inconsistency (tariffs, subsidies, targets) - Bureaucratic delays in permits & approvals	High	High	- Engage regulators and policy advocacy groups - Secure long-term PPAs for utility-scale projects with government backing - Partner with local firms to ease approvals
Geopolitical & Security	- Political instability in some regions - Theft & vandalism of solar assets	High	High	- Focus projects in stable regions - Political risk insurance (MIGA, AfDB) - Tamperproof designs & community-led security
Implementation risks (Utility-scale projects)	- Tariff disputes: IPPs signed PPAs (2016) for 14 solar projects (1,125 MW) but most have not reached financial close due to disagreements over tariff level (US\$0.115/kWh) vs government's US\$0.075/kWh). - Delayed signing of key bankability documents: e.g. Put-Call Option Agreements (PCOAs), Partial Risk Guarantees (PRGs) missing or delayed. - Lack of investor confidence & financial closure delays due to shifting project assumptions and cost structures.	High	High	- Ensure PPA negotiations include realistic tariff setting that reflects project location / sunk costs & risk adjustments. - Government to expedite signing and execution of bankability documents (PCOAs, PRGs). - Use transparent cost benchmarking & independent expert cost reviews. - Use phased implementation or pilot projects to validate cost assumptions. - Include fall-backs or escalation clauses if project costs deviate significantly
Financial & Economic	- Currency volatility - Limited access to local financing - Credit risk from offtakers & consumers	High	Medium-High	- Hedge currency exposure - Blend financing (DFI concessional + commercial) - Credit enhancements (guarantees, insurance, escrow)
Technical & Operational	- Import & logistics disruptions - Substandard equipment quality - Lack of skilled technicians	Medium-High	Medium-High	- Diversify suppliers & logistics channels - Source only from certified suppliers with warranties - Invest in local O&M training and partnerships
Legal & Contractual	- Weak contract enforcement (e.g. PPAs) - Sudden tax/import law changes	Medium-High	Medium-High	- Use international arbitration clauses - Join industry associations to influence reform - Build in tariff/tax contingencies
Social & Environmental	- Land acquisition disputes - Community resistance - Environmental impact concerns	Medium	Medium	Conduct early community engagement & CSR initiatives tied to local needs
Market & Competitive	- Low consumer awareness - High upfront costs vs diesel - Increasing competition	Medium	Medium	- Expand PAYG, leasing & innovative financing; - Awareness campaigns & pilots; - Price differentiate through service quality & bundled offerings

Case studies of successful solar companies, initiatives and investments in Nigeria

- **Commercial and industrial:** Founded in 2017, Daystar Power is a C&I energy company that delivers hybrid solar solutions to reduce energy costs and emissions for African businesses. Its no-CAPEX model characterised by long-term contracts paid via flat fees or per kWh, makes solar affordable from day one. Today, Daystar operates in 7 countries with 405+ installations and 113MWdc capacity. Acquired by Shell in 2022, it is targeting 400MW by 2025 to become a leading C&I solar provider in Africa.
- **Minigrids:** Husk Power, founded in 2008, pioneered the first renewable energy minigrid and today operates the world's largest fleet, with 150 solar minigrids across Nigeria and India. In 2022, it became the first profitable minigrid company on two continents, thanks to its platform approach that combines electricity with energy services for rural businesses and households. Husk has committed to building 5,000 minigrids by 2030, reaching over 10 million people and avoiding seven megatons of emissions, proving that rural minigrids are both scalable and bankable.
- **Solar component manufacturing:** Founded to reduce Nigeria's dependency on imported solar modules and to help close the energy access gap, Auxano Solar made a significant leap forward in 2023 by commissioning a fully automated 100 MW solar panel assembly factory in Ibeju Lekki, Lagos. Backed by an investment of approximately US\$2 million from All On (a Shell-funded impact investor), the factory strengthens local manufacturing, lowers foreign exchange exposure, and improves supply chain reliability. With a strategy that serves both formal (mini-grids, C&I providers) and informal (importers/resellers) sectors, Auxano aims to meet rising domestic demand and extend exports across West Africa.

- **Government-backed schemes:** The Nigeria Electrification Programme (NEP), initiated by the Rural Electrification Agency and led with private sector participation, is transforming energy access for rural and underserved communities. By deploying a mix of mini-grids, standalone solar systems, rooftop solar, and productive appliances, NEP has already delivered roughly 94 MW of clean electricity across over 176 mini-grids, positively affecting more than 7.8 million Nigerians—including MSMEs, female-headed households, and off-grid communities. Implemented with institutions like the World Bank and AfDB, the programme leverages innovations such as performance-based grants, minimum subsidy tenders, and technical assistance to ensure sustainability and result-orientation.
- **Loans for solar adoption:** Fidelity Bank's Green Energy Finance (GoSolar) program aims to enable households and SMEs to adopt solar systems—panels, inverters, batteries—by removing upfront capital burdens and providing access to finance. Under the scheme, applicants can borrow up to ₦20 million with a 24-month repayment tenor, provided they contribute 30% equity. The pricing structure (35% interest plus fees) reflects the risk profile, while security measures like collateralising financed solar assets, lease agreements, and personal guarantees help manage risk. By positioning solar solutions as financing-enabled rather than full upfront purchases, Fidelity Bank is carving out a role in bridging the affordability gap for solar adoption among Nigerian end users.
- **Partnerships:** Baobab+ Nigeria and Imperium have joined forces to break down financial barriers to clean energy – combining Baobab+'s solar expertise with Imperium's digital lending to deploy hybrid solar power stations backed by tailored financing. Aimed especially at underserved communities, this strategic alliance supports Nigeria's goal of universal energy access by 2030. With over 140 million people lacking reliable power and a renewable energy contribution under 20%, the partnership's loan schemes make solar uptake more viable and help reduce dependence on expensive, unreliable electricity sources.

Conclusion

Nigeria's solar sector is steadily gaining momentum, driven by local innovation, government support, international financing, and private sector participation. Case studies such as Daystar Power, Husk Power Systems, and Auxano Solar highlight how companies address Nigeria's energy gap—from powering commercial and industrial businesses to pioneering profitable minigrid models and scaling local manufacturing capacity.

The financing ecosystem is equally dynamic, with multilateral institutions, government incentives, commercial banks, private capital, and innovative consumer-level models such as Pay-As-You-Go and bank-backed green loans all contributing to market growth. The emergence of green bonds and crowdfunding platforms further underscores the sector's evolution toward sustainability and financial inclusivity.

Despite challenges such as high capital costs, policy uncertainty, and infrastructure gaps, Nigeria's solar industry has shown resilience and adaptability. With more substantial alignment between government, financiers, and private developers, the country has the potential to close its energy access deficit and catalyse a broader clean energy-driven economic transformation.

Information Sources

- [Daystar Power – Company Website](#)
- [Husk Power Systems – Company Website](#)
- [Punch – All On & Auxano Commission 100MW Solar Panel Factory](#)
- [REA – Nigeria Electrification Project \(NEP\)](#)
- [Fidelity Bank – GoSolar Financing Program](#)
- [BusinessDay – Baobab Nigeria and Imperium Partnership](#)
- [FCMB – Solar Financing Product](#)
- [Access Bank – Switch to Solar Program](#)
- [Wema Bank – Green Energy Finance](#)
- [Trine – Daystar Power Crowdfunding Investment](#)
- [All On – Investment in Salpha Energy](#)
- [CardinalStone Capital Advisers – \\$18m Series B Investment in Arnergy](#)
- [Energy Tracker Asia – Solar Energy in Nigeria](#)
- [Energy for Growth Hub – How to Resolve the Tariff Disputes Blocking Nigeria’s Solar Project Pipeline](#)



The Nigeria Solar Marketplace

The Nigeria Solar Marketplace, funded by the Embassy of the Netherlands in Nigeria and the Netherlands Enterprise Agency (RVO), connects local and international businesses to unlock opportunities in Nigeria's growing solar sector. It fosters collaboration among Nigerian, Dutch, and European private sector players, serving as a trusted hub for solar companies, developers, investors, and stakeholders.

Visit our website to learn more: <https://solarmarketplacenigeria.com>