Managing Currency Risk in African Minigrid Finance

How local-currency solutions, guarantees, and standardization can lower financing costs

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Overview of the Africa Minigrids Program

The Africa Minigrids Program (AMP) is a country-led regional technical assistance program for minigrids, active in an initial 21 African countries. It is led by the United Nations Development Programme (UNDP) with funding from the Global Environment Facility (GEF) and implemented together with Rocky Mountain Institute (RMI) and the African Development Bank (AfDB).

AMP's objective is to expand electricity access by improving the financial viability of renewable energy minigrids and attracting scaled-up commercial investment. The program focuses on reducing costs across hardware, software, and financing, as well as fostering innovative business models. By lowering costs, minigrids become more financially sustainable, commercial capital flows increase, and end-users benefit from lower tariffs and expanded service.

The program operates through two pillars:

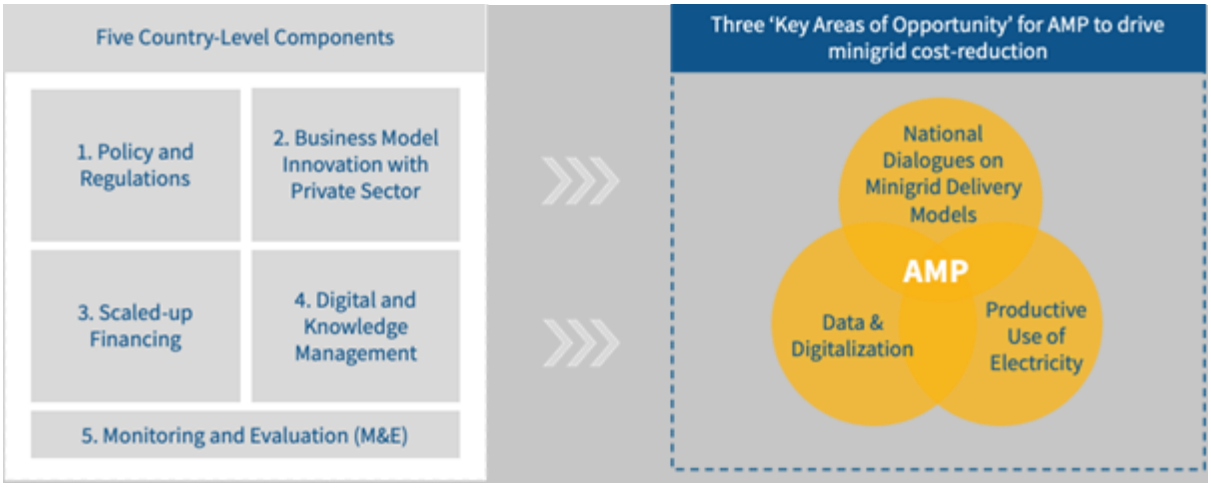
- 21 national projects,[1] each focusing on: (1) policy and regulations, (2) private-sector business model innovation, (3) innovative financing, (4) data and digital tools, and (5) monitoring and evaluation (M&E).
- A regional platform offering knowledge tools, technical assistance, operational support, and digital solutions to reduce minigrid costs.

AMP's strategy centers on three key areas of opportunity:

1. Advancing national dialogues on minigrid delivery models.
2. Promoting productive uses of electricity.
3. Leveraging data and digital solutions for cost reduction.

This dual approach — country-level implementation backed by regional support — positions AMP as a distinctive actor in Africa's minigrid ecosystem.

Exhibit 1: AMP key areas of opportunity



AMP's second area of opportunity — promoting productive uses of electricity — directly connects to the second component of national projects: business model innovation involving the private sector. Under

this component, each national project supports investments in up to three types of minigrid pilots designed to demonstrate cost-reduction opportunities. See Exhibit 2 for full descriptions.

Exhibit 2: Types of minigrid pilots in AMP

Type of pilot	Description
Greenfield minigrids	Minigrid systems usually built in previously unconnected areas; they include generation and distribution assets, and in some cases, productive use equipment. In some instances, minigrids can be interconnected to larger grids to expand the electricity supply and/or help stabilize the grid system, therefore reducing technical and commercial losses.
Hybridization of diesel-based minigrids	Retrofitting (i.e., hybridization) of existing fossil-fuel-based minigrids to increase the renewable fraction of power generation and reduce the operations and maintenance costs.
A productive use overlay to an existing or planned minigrid	Investments in productive use appliances and equipment — and if needed in minigrid system enhancements — to increase the number and energy consumption of productive users of power connected to an existing or planned minigrid. This can help generate additional income, improve users' ability to pay for services, and improve utilization of minigrid assets.

To help scale sustainable minigrid policies and practices, AMP established the Africa Minigrids Program Community of Practice (AMP-CoP), a peer-to-peer working group aimed at fostering collaboration and knowledge exchange. The AMP-CoP brings together representatives from African governments, rural electrification agencies, the private sector, academia, and international organizations to jointly address challenges in minigrid development.

Through this platform, practitioners and experts share lessons and coordinate efforts to accelerate sector growth. The AMP-CoP focuses on advancing effective policies, creating enabling regulatory frameworks, promoting viable business models, and unlocking financing to attract private investment, all contributing to the broader objectives of AMP.

Executive Summary

Distributed energy systems, particularly minigrids, offer a significant opportunity to advance the energy transition in sub-Saharan Africa, where extending national grids is often less cost-effective. These systems can be deployed quickly and are modular and scalable, making them uniquely adaptable to the needs of remote or isolated communities. However, financing this infrastructure remains a major hurdle. Financiers are generally skeptical due to unfavorable policy environments and high risk of failure. Specific barriers include:

- **Market Vulnerabilities:** Weak demand and low utilization factors.
- **Project Risks:** High up-front capital expenditures and the looming risk of future grid encroachment.
- **Offtaker Profiles:** Non-bankable offtakers, such as rural customers without credit histories or bank accounts.
- **Scale Constraints:** Small ticket sizes inflate transaction costs and limit investor appetite.
- **Currency Risk:** The volatility, inconvertibility, and liquidity constraints of local foreign-exchange (FX) markets.

These compounding structural and market failures make it difficult to mobilize affordable capital, underscoring the urgent need for new or adapted financial mechanisms tailored specifically to the minigrid sector in sub-Saharan Africa. This report primarily analyzes the mechanics of currency risk and mechanisms to manage it.

The mechanics of currency risk

Currency risk is a combination of exchange-rate volatility, inconvertibility risk (the inability to access hard currency when needed), and liquidity risk in thin FX markets. When projects earn revenue in local currency but rely on hard-currency financing (typically US dollars or euros), local-currency depreciation sharply increases debt-service obligations. This weakens debt service coverage, pushing financiers to demand higher returns, shorter tenors, or heavier security packages — requirements that ultimately make minigrid projects unbankable.

Key takeaways of research:

- Currency mismatch (hard-currency debt versus local-currency revenues) materially raises the cost of capital and constrains available tenors, and many solutions mainly shift or pool exposure rather than remove it, slowing minigrid deployment.
- Local-currency facilities and credit enhancement can reduce exposure — but instrument choice depends on capital market depth and pipeline scale.
- Currency-risk solutions are most credible when paired with clear mechanisms for who holds residual exposure (sovereign, facility, guarantor, developer, or end-user) and under what conditions.
- Guarantees and first-loss capital work best when small, targeted, and paired with standard reporting and escrow/waterfall controls.
- Execution capacity (specialist credit teams, standardized documentation, sector-specific credit models) is itself a risk-reducing input that improves repeatability and time-to-close.

Objective and audience

This insight brief is written primarily for solution providers — the technical and financial actors capable of designing and implementing currency-risk solutions, such as development finance institutions (DFIs), national development banks (NDBs), public development banks (PDBs), credit guarantee agencies, and facility managers. Policymakers, Africa Minigrids Program (AMP) national teams, bilateral partners, and developers are a secondary audience.

The objective is to provide a practical, technically literate guide to *managing* currency risk, defined here as reducing and re-allocating exposure to depreciation and transfer constraints. While these risks are often context-inherent and cannot be fully eliminated in the short term, this brief — grounded in evidence from the AMP — seeks to provide a path forward for mobilizing the capital necessary for the continent's energy future.

About the Africa Minigrids Program

The Africa Minigrids Program (AMP) is a country-led technical assistance program spanning 21 African countries. Implemented by UNDP in partnership with RMI and the African Development Bank, AMP combines national projects with a regional knowledge platform to reduce structural and financial barriers to the commercial viability of renewable energy minigrids. Its work spans policy and regulation, business model innovation, scaled-up financing, and knowledge sharing to help lower costs and crowd in private investment. The AMP is supported by the Global Environment Facility and the Governments of Denmark and Luxembourg.

1. Introduction: The Currency Risk Challenge in Minigrid Project Finance

The Currency Exchange Fund's (TCX) long-run review of 95 developing country currencies shows that large one-year currency swings are routine: in a typical year, roughly one in eight emerging markets and developing economies' (EMDE) currencies loses more than 20%, and about one in twenty drops by over 50% against hard currency. These odds have persisted for more than 50 years since the end of Bretton Woods, underscoring why financiers systematically price currency risk in EMDE deals.[1]

In expert interviews conducted for this Insight Brief, stakeholders consistently report that currency risk raises financing costs and constrains available tenors, and that many solutions mainly shift or pool exposure rather than remove it. Multiple stakeholders indicated that currency instability can "bring even the best projects to their knees" if not managed from project origination.

The core issue is a currency mismatch: many capital expenditures, including solar panels, inverters, batteries, and other equipment, are imported or effectively benchmarked to hard-currency prices, even when sold domestically in local currency. Many developers also borrow in hard currency, while project revenues (tariffs paid by consumers) are in local African currencies. In many AMP countries, FX volatility, inconvertibility,[i] and liquidity constraints mean developers have difficulty accessing dollars for equipment or debt service. As one sector expert said, the sector functions under a "permanent uncertainty discount."

This structural mismatch creates a predictable vulnerability: local currency revenues remain relatively fixed while hard-currency liabilities can jump in local terms during depreciation cycles. In AMP countries, devaluations of 20%–50% over 12–24 months are not rare, and these FX movements undermine project viability even when operational performance is strong. Nigeria, an AMP country, shows an extreme precedent. Between 2003 and 2023, the U.S. Dollar's value against the Nigerian naira increased from an average of ₦131 per dollar in 2003 to approximately ₦460 per dollar by mid-2023, representing a 251% increase in the amount of naira needed to buy one US dollar (illustrative of the magnitude of depreciation episodes seen in some markets).[2]

In Zambia, also an AMP country, the kwacha depreciated by 35% between the end of December 2022 and December 2023, weakening from about K18/US$ to K25/US$ over the year. Thus, cash flows vary wildly, even if constant in local currency, and developers that may have been able to repay hard currency loans at prices just a year or a few months ago no longer can, reducing bankability. This creates uncertainty not only for financiers, but also for developers who must price tariffs that may no longer cover hard currency obligations. Each percentage point shaved off the cost of capital not only improves financing viability, it also lowers the levelized cost of electricity, meaning cheaper tariffs and possibly faster scale. That kind of reduction can mean the difference between tariffs that are workable for rural customers and those that are prohibitive.

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[i] Convertibility risk refers to the possibility that a project cannot convert local currency revenues into hard currency for foreign debt servicing due to currency/FX reserve shortages leading to government-imposed hard currency rationing or transfer limits capital controls to prioritize scarce US dollar reserves for "essential" sectors like fuel or medicine imports. It is a form of political risk typically distinct from currency depreciation.

Recent work on derisking renewable energy investment (DREI)[ii] also shows that currency risk is not equally binding across AMP markets. In the cross-country DREI comparison, currency risk was rated high in Malawi and Chad, medium in Senegal, and low or medium-low in Burkina Faso, Djibouti, Eswatini, Mali, Niger, and Somalia. That matters because the right response is market-specific: in some markets FX solutions are central, while in others they need to be sequenced alongside broader derisking on planning, demand, developer capability, and financing access.

About the Derisking Renewable Energy Investment (DREI) framework

The DREI framework helps policymakers identify the barriers and risks that deter private investment in renewable energy and develop targeted public interventions to address them. These interventions can reduce, transfer, or compensate for risk, improving project risk-return profiles and helping catalyze investment at scale. Within AMP, DREI assesses minigrid markets through 10 risk categories: energy market, social acceptance, hardware, labor, developer, digital, demand, financing, currency, and sovereign risk.

This brief focuses on currency risk in depth because it directly affects financing costs and access to capital, while recognizing that it interacts with several other risks, particularly energy market, demand, developer, financing, and sovereign risk. DREI includes publicly available methodologies, tools, and resources across four sectors: utility-scale renewables, rooftop PV, minigrids, and solar home systems.

From the perspective of financiers, higher required returns on EMDE infrastructure investments compensates for perceived risks such as currency volatility, illiquid local markets, and limited hedging options. This is often referred to as a risk premium, and multiple studies have shown that currency risk (exchange rate volatility, inconvertibility risk, and liquidity risk) is a major contributor. For example, a 2018 EMPEA and Sarona study found that nearly 70% of institutional LPs would increase allocations to emerging markets if affordable hedging options were available.[3] Similarly, an IMF working paper (2024) highlights how currency volatility in low-income markets leads to higher borrowing costs and deters capital flows.[4] Convergence Blended Finance also notes that currency risk is consistently priced into deal structures and return expectations across their global transaction database.[5]

For minigrids, currency risk inflates financing costs, often preventing access to long-term debt at affordable rates**.** Developers — especially early-stage companies — struggle to access finance at affordable rates and must instead rely on grants or high-cost equity. In many markets, local debt is priced far above what project cash flows can bear, forcing developers to seek 30%–50% grant funding just to close the gap.[6]

Currency risk is a material driver of financing costs for minigrids, but it is not the only barrier preventing equity providers and lenders from participating. In many AMP markets, financiers are also responding to weak electrification planning and limited grid-arrival visibility, regulatory and tariff uncertainty, offtaker payment and demand risk, developer and permitting constraints, procurement and contracting challenges, and wider

[ii] For more details on DREI analysis see: www.undp.org/DREI.

sovereign or political risk. This brief focuses on currency risk because it directly affects the cost and availability of capital, but the most credible financing solutions will usually need to be sequenced alongside broader derisking of these related constraints.

Within that wider risk environment, currency risk raises the cost of capital through four main channels: higher required returns, shorter tenors and tighter terms, hedging costs and constraints, and added underwriting friction. These channels reinforce one another and often leave minigrid developers dependent on grants or expensive equity.

How currency risk raises the cost of capital:

Higher required returns (risk premium and discount rate uplift)	Currency risk increases the return financiers require to compensate for potential depreciation and related macro/transfer constraints. In practice this shows up as a higher coupon on debt and higher return expectations on equity (i.e., a higher discount rate applied to future cash flows).
Shorter tenor and tighter terms (structure and covenants)	Even when financiers are willing to lend, currency risk often leads to more conservative structures: shorter tenors, higher debt service reserves, tighter covenants, and stricter security packages. These terms raise the effective cost of capital and can make projects harder to finance on tariffs that remain affordable.
Hedging costs and constraints	Where hedging is available, premiums, collateral requirements, and short tenors can make it uneconomic for minigrid-sized transactions — especially over the long horizons minigrids need. If developers hedge currency risk (e.g., through swaps or forwards),[iii] the premiums can add 5%–10% or more on top of interest rates — effectively raising the cost of debt. Hedging may reduce exposure but rarely eliminates it, and it may not address convertibility/transfer constraints in stressed FX environments.
Project bankability and underwriting friction	Financiers may already view minigrids as high risk due to small ticket sizes, limited operating history, collection risk, and regulatory uncertainty. Currency mismatch compounds this by adding macro risk that is difficult to underwrite at the project level, increasing diligence time and reinforcing conservative pricing and terms.

[iii] FX Forwards are binding OTC agreements to exchange two currencies at a predetermined rate on a specific future date. FX Swaps are simultaneous, two-leg transactions involving an initial exchange of currencies (usually spot) and a reverse exchange at a later date (forward), primarily used for managing liquidity and hedging short-term currency risk.

Currency hedging tools exist. So why aren't developers using them?

Financial hedging tools exist, but they are poorly matched to most minigrid transactions. Commercial forwards and swaps are often unavailable for African currencies at the tenors minigrids need, and when they are available they can be prohibitively expensive. Specialized providers such as TCX can extend tenor beyond what commercial markets usually offer, but volumes remain limited and pricing still reflects real long-term depreciation risk.

The practical implication is that developers cannot rely on "pure" hedging alone. Average minigrid transaction sizes are typically too small for bespoke swaps or structures, and spot-market access offers projects little protection against thin market liquidity or sudden depreciation. According to developers and DFIs interviewed, hedging costs layered on top of already high nominal lending rates can push effective borrowing costs into the 20%–30% range, undermining the economics for rural minigrid projects.[7]

Even without hedging, many developers in African markets face local bank interest rates of 15%–20%; once realistic FX premiums of 5%–10% are added, the total cost of capital quickly escalates to levels that render most projects financially unviable. As one impact investor put it, developers either "play roulette" with unhedged loans and hope that this is not the year their currency crashes or pay a hedge premium so steep it squeezes profit margins to the point it may be economically unfeasible. In practice, the most viable pathways combine selective hedging, local-currency lending, aggregation, and targeted concessional support rather than treating hedging as a stand-alone fix.

The table below summarizes the general currency risk management strategies used in African project finance and their real-world viability for minigrids.

Managing currency risk in minigrid projects: Practical approaches and limitations

Approach	Is it Viable?	What You Need to Know
Full Local Currency Project Finance	Only feasible in South Africa's deep capital markets	Most African markets do not have long-term, affordable local debt for minigrids
100% Hedging of FX Risk	Rare, expensive, and typically only for large corporations	Often too costly for most minigrid projects
Partial Hedging (~70%)	Most common among DFIs and Export Credit Agencies (ECAs)	Considered "good enough" to make deals bankable in many structured deals with some risk left

Use Spot FX Markets	Not reliable	Thin, volatile markets expose the project to full currency volatility — too risky
Country-Level Hedging Facility	Promising if large (> US$100M)	Needs concessional capital and strong institutional anchor to offer long term coverage

The question, then, is not whether hedging exists, but which currency-risk pathway is credible for minigrids in a given market.

Where is the local currency finance?

Local-currency borrowing should be the obvious fix, but in many African markets the constraint is not depreciation alone. Lenders are also pricing inflation, convertibility and transfer risk, sovereign and regulatory uncertainty, and the scarcity of long-tenor local-currency liquidity. DREI experience across AMP reinforces this: financing constraints usually reflect a bundle of risks, not currency alone.

At the same time, domestic institutional capital remains an underused opportunity. Pension and insurance investors are structurally better matched to long-tenor local-currency infrastructure, but they typically require investable scale, standardized reporting, and credit enhancement before they can participate. In practice, commercial bank lending remains short-tenor, expensive, and over-collateralized. Long-term tenors (7–10+ years) in local currency, necessary for many minigrid projects, are almost unheard of without DFI support.[8] For most AMP markets, the near-term path is therefore staged: strengthen bankability first, use NDB/DFI intermediation and guarantees to extend tenor, and only then build toward broader domestic institutional participation.

Access to local currency loans is limited. Typical commercial bank loan covenants:

- Short-term (2–5 years), misaligned with project life
- Expensive (15%–30% in nominal terms)
- Require over-collateralization (125%–150%)

Ultimately, these constraints mean that local-currency borrowing is rarely a stand-alone solution in early-stage minigrid markets. Where local debt is short-tenor and expensive, the immediate priority is often to improve project bankability through stronger demand evidence, collections performance, enforceable contracts, and transparent operating data. Where lender familiarity and risk appetite are weak, guarantees, concessional risk-sharing, or national development bank intermediation may be needed to extend tenor and reduce pricing. And where transaction sizes are too small to justify bespoke structures, aggregation or warehousing may be necessary before local-currency capital can participate at scale.

The next section describes the transitional solutions — particularly blended finance, guarantees, and on-lending structures — that can help bridge the gap.

What can blended finance do?

Hedging and local-currency loans are essential tools that should, in theory, solve the currency mismatch at the heart of minigrid finance. In practice, however, many African markets still lack the long-tenor local debt, lender familiarity, and market depth needed to finance minigrids at affordable rates — especially at small ticket sizes and in early-stage sectors. This is where blended finance becomes catalytic: it uses targeted concessional capital and credit enhancement to shift, pool, or temporarily absorb risks that commercial financiers are unwilling (or unable) to carry, long enough to make transactions viable, repeatable, and scalable. In DREI terms, these are primarily forms of financial derisking: they do not remove every underlying barrier, but they can materially improve financing conditions when targeted at the right risks and paired with the wider market reforms needed to support private investment.

Blended risk-sharing mechanisms can operate at different levels: project-by-project, pooled through intermediaries such as minigrid aggregators, or regionally. Philanthropic partners, such as the Shell and IKEA Foundations, alongside multilaterals like the African Development Bank (AfDB) and the Green Climate Fund (GCF), are often well placed to provide the patient, risk-tolerant capital these facilities require.

At a broader scale, regional initiatives — including the Africa Energy Guarantee Facility or a potential TCX Africa window — could offer a path toward more standardized, cross-border currency risk coverage. In AMP countries, however, the feasibility of these pathways depends heavily on market depth, pipeline scale, and institutional capacity. DREI experience across AMP countries also suggests that in thinner markets these instruments work best when paired with clearer planning, stronger project bankability, and better visibility on demand and pipeline development.

At a high level, there are credible precedents for catalytic blended finance in African energy and infrastructure, and the same basic structures recur in minigrid-relevant transactions:

- **Partial credit guarantees** that improve credit quality by covering part of the downside risk, helping lenders or investors participate on better terms.
- **First-loss or subordinated tranches** that absorb early losses while portfolios build a track record, reducing risk for commercial financiers.
- **Local-currency on-lending facilities** that allow developers to borrow in the same currency in which they earn revenue, reducing currency mismatch.
- **Warehouse or aggregation vehicles** that pool many small assets into a larger, more standardized portfolio that is easier to finance at scale

Blended structures tend to work best when they are explicit about which risk they are addressing. In minigrid finance, that is often a combination of three factors: (1) currency mismatch and broader macro risk, (2) perceived technology and execution risk, and (3) the transaction costs associated with small deals. This is why the most successful approaches are usually “stacked”: one layer improves credit quality, another extends tenor or pools assets through an intermediary, and, only where it is economic to do so, hedging is used selectively to cover residual FX exposure. This is also consistent with the DREI lens: instruments are most effective when they are matched to the underlying constraint — whether financing risk, developer risk, demand/end-user credit risk, currency risk, or wider market uncertainty—rather than treated as a stand-alone fix.

For minigrids, these blended approaches matter in at least three practical ways. First, guarantee facilities and related blended structures can help mobilize domestic institutional capital into infrastructure bonds and notes where investor mandates require rated, standardized instruments. Second, DFI-backed on-lending facilities — often routed through national development banks — can extend longer-tenor local-currency credit where commercial banks cannot. Third, specialized FX providers and donor-supported hedging facilities can help select sectors access longer-tenor hedges than the commercial market would otherwise provide, even if volumes remain limited. The case studies that follow illustrate these pathways in practice.

2. Cracking the Currency Challenge: Expert Insights and Case Studies in Currency Risk Management and Local Currency Finance

Having set out why currency risk matters, the remainder of this brief focuses on what can be done in practice. It is organized around three questions and objectives:

A. **What is currently being done to manage FX risk?** This section summarizes the main approaches currently being used in minigrid finance, illustrated through case studies and emerging financial practices.
B. **What lessons are most relevant for AMP countries?** This section draws out the most relevant lessons for AMP markets, taking into account differences in capital-market maturity and market depth.
C. **What should key stakeholders do next?** This section sets out practical recommendations, including priority actions for different stakeholders and the sequencing of interventions.

By the conclusion of this brief, readers will have a practical suite of mechanisms currently in use, ideas for cross-border knowledge transfer, and a clear division of labor for implementation.

A. What is currently being done to manage FX risk

Country Case Studies in Currency Risk Management and Local-Currency Finance:

Case Study 1: Rwanda's Renewable Energy Fund — Local Currency On-Lending

Context and intervention:

One effective way to avoid currency risk is for donors, funds, or MDBs to offer local-currency credit lines for minigrid financing. Rwanda's Renewable Energy Fund (REF) offers a leading example. Launched in 2017 with US$50 million from the Climate Investment Fund and the World Bank's Scaling Up Renewable Energy Program, the REF was structured as a local-currency financing facility to support off-grid electrification (solar home systems and minigrids). Local commercial banks showed limited appetite to underwrite minigrid cash flows. As a result, the national development bank, the Development Bank of Rwanda (BRD), operated the local-currency (LCY) credit line directly for this segment, and a donor-backed guarantee was added to crowd lenders in.[9] Crucially, the Government of Rwanda assumed the currency risk while the World Bank loan to Rwanda is repaid in hard currency, but the funds are on-lent in Rwandan francs (RWF).[10]

The BRD manages REF and extends credit to minigrid developers and households in RWF, shielding end-borrowers from exchange fluctuations.[11] By taking on conversion risk at the sovereign level, Rwanda enabled private sector borrowers to obtain long-term local currency loans at reasonable rates, something the local financial market would not have provided otherwise. Rwanda's authorities deemed this acceptable given strong project economics and the country's broader strategy to reduce energy imports.[12]

What happened/what made it work:

The REF's local-currency lines of credit improved affordability and confidence for minigrids and solar developers who could plan project cashflows in RWF without fearing a ballooning dollar debt.[13] This case underscores how government and DFI partnership can remove currency risk as a barrier — effectively "pooling" it at a level better able to absorb currency volatility. That said, not all countries can easily replicate this; it

requires prudent debt management and willingness by governments to shoulder currency exposure for the sake of market development.

Public reporting suggests REF disbursements skewed toward other off-grid segments and that commercial banks remained cautious about early-stage minigrid lending, reinforcing BRD's role as the main channel for local-currency on-lending and risk intermediation. By mid-2024 US$42.85 million has been disbursed (87.6% of the US$48.94 million grant) with ~1.98 million people provided with new or improved electricity services, chiefly via solar home systems; bank and savings and credit cooperative organization windows disbursed ~US$4.6 million to lenders while the minigrid window had minimal uptake. Public documents do not report any guarantee calls to date.[14]

While the project has since closed, Rwanda's experience will be instructive as other AMP countries with shallow capital markets, such as Malawi, Eswatini, or Zambia, consider local currency credit facilities to spur rural energy investments.

Notable key lessons from Rwanda

1. Sovereign/DFI intermediation can pool FX exposure and unlock LCY on-lending when commercial markets cannot provide long tenors.
2. Institutional channel matters: When commercial banks lack appetite or capability, NDBs/program windows may need to originate and manage credit to reach the sector.
3. LCY facilities still require investability fundamentals (project pipeline, enforceable contracts, credible demand evidence, reporting) to drive uptake — otherwise disbursement may skew toward other off-grid segments.
4. Credit enhancement may still be needed to crowd lenders in, even where a sovereign is already absorbing FX exposure (e.g., a guarantee window to improve lender participation).

As mentioned, an NDB or DFI anchored LCY on-lending window, optionally backed by a donor portfolio guarantee, can substitute for weak bank appetite at the outset and can use NDB/DFI intermediation to extend LCY tenors now, while building the project pipeline, documentation, and data needed to attract a broader set of domestic financiers over time.

Case Study 2: Nigeria – Rural Electrification Agency (REA) Project

Context and intervention:

Within AMP, Nigeria was the first country to begin national implementation. In Nigeria, an innovative blend of guarantees and subordinated donor capital is demonstrating how to mobilize local currency financing at scale for minigrids.

Nigeria has a history of sharp currency devaluations (in naira) and limited bank appetite for long-term minigrid lending.[15] To tackle this, a coalition of actors, including InfraCredit (a domestic infrastructure credit guarantee institution), the Rural Electrification Agency (REA), and the UK's Foreign, Commonwealth & Development Office (FCDO), developed a program to derisk naira investments in solar minigrids.

What happened/what made it work:

One flagship transaction was the issuance of Nigeria's first local currency green bond (Sukuk) for minigrids in 2022. InfraCredit provided its triple-A rated guarantee to a naira bond (an Islamic forward lease Sukuk) that

raised funds from Nigerian institutional investors (pension and insurance funds) to finance a portfolio of new minigrids. The bond's credit enhancement was further backed by a £10 million Climate Finance Blending Facility from FCDO, which took a first-loss position (subordinated tranche).

This blending of concessional capital effectively **r**educed the risk and cost for local financiers, enabling the bond to carry a lower coupon than the developer could get on its own. The proceeds, in naira, are funding companies like Prado Power to construct solar minigrids in unserved rural communities. According to InfraCredit, this structure brought down the cost of capital to an "affordable blended rate" and attracted domestic investment that would not otherwise have materialized.[16]

Another Nigerian developer, Darway Coast, leveraged an InfraCredit guarantee and the same climate facility to secure ~₦3.5 billion (~US$2.6 million) in local capital market financing for six minigrids. Notably, Darway's loan was certified as the first green-certified naira debt for off-grid energy, signaling growing investor confidence.[17]

Notable key lessons from Nigeria:

1. Use a robust guarantee to access domestic pensions and insurers through capital markets rather than relying solely on bank loans.
2. Keep any first-loss cushion small and time-bound (e.g., capped percentage of principal with a sunset/step-down). Its job is to absorb early performance volatility and substitute for scarce developer equity, not to underwrite the whole risk stack.
3. A practical scale point emerged repeatedly: the instrument became viable because it financed a portfolio, spreading risk and transaction costs across assets. Furthermore, a templated reporting pack (uptime, collections, debt service coverage ratios (DSCRs) by asset and portfolio, arrears aging, reserve balances) alongside controlled cash-flow waterfall statements showing priority of payments can help reduce diligence time and enable replication, which will give pensions/insurers the transparency they need to price quickly and hold to maturity.
4. Build a visible multi-deal pipeline so it can be repeated quickly.

These lessons are relevant to AMP countries, as they show how credit enhancement, standardization, and aggregation can unlock domestic LCY pools where they exist. For AMP countries with thinner capital markets, the sequencing may differ — often starting with guaranteed/NDB-originated LCY lending and warehousing, then moving toward capital-markets issuance once operating data and scale support repeat transactions.

Emerging solutions and innovative ideas

Beyond these cases, various new solutions are being explored to manage currency risk in African infrastructure finance.

AfDB's proposed currency convertibility mechanism: The African Development Bank (AfDB) in 2025 proposed an innovative currency convertibility mechanism leveraging Africa's natural resource wealth. The concept involves creating a non-tradable currency or credit backed by a basket of commodities (minerals, oil, etc.) that would hold its value better than any single African currency. Such a mechanism could be used to finance clean energy projects. In effect, financiers would be lending in a *commodity-pegged unit* that reduces devaluation risk and ensures convertibility. This remains conceptual and would raise significant questions around governance, pricing, liquidity, and who ultimately bears residual FX risk, but it underscores the high-level attention being

given to currency solutions.[18] If implemented, this could become a **regional pooled approach** to currency risk, potentially benefiting multiple countries with one platform.

TCX and long-term FX risk management: Meanwhile, existing hedging facilities are scaling up. TCX, for instance, grew its hedge portfolio by 65% in 2023 to meet rising demand.[19] Donor initiatives are looking at ways to **buy down hedging costs** (e.g., by capitalizing funds that can offer below-market swap rates for climate projects). However, stakeholders consistently emphasized that hedging is rarely a full solution for minigrids: tenors are often too short, volumes remain limited, and pricing reflects real long-term depreciation risk. Even DFIs and impact investors often hesitate to absorb full hedging costs unless they are heavily blended with donor capital

A related off-grid example is in Malawi, where in 2024 Acumen's Hardest-to-Reach initiative announced a US$2 million blended-currency loan, including a US$1 million component hedged against the Malawian Kwacha, to Yellow Malawi. This was supported by a TCX market-creation hedging subsidy. It concerns solar home systems rather than minigrids, but it is still a useful illustration of donor-supported hedging in an AMP country.

Another avenue is developing local **currency-indexed tariff mechanisms** for minigrids.[20] Many national regulators have mechanisms to include automatic inflation or FX indexation in minigrid tariffs (similar to how utility PPAs sometimes adjust for currency changes), although implementation leans heavily on political will and tariff affordability. This would allow developers to pass through a portion of currency depreciation through tariff increases, thereby protecting their revenue base. However, such indexation for retail tariffs raises affordability and political economy questions, so it needs careful design. Where used, indexation tends to be most credible when it is rules-based, transparent, and paired with targeted affordability measures rather than negotiated on an ad hoc basis.

A small number of broader, minigrid-adjacent precedents are also worth noting here. While these instruments were not designed specifically for minigrids, they illustrate the kinds of local-currency, guarantee, and tenor-extension structures that could inform future solutions for the sector:

- **The International Development Association Private Sector Window Local Currency Facility** provides long-term local currency for International Finance Corporation investments in International Development Association and Fragile and Conflict-Affected Situations markets where market solutions are absent or limited.[21]
- **Proparco's UNLOCK** is a guarantee scheme offered to financial institutions to jointly cover the risk on long-term financing in local currency for key development projects.[22]
- **World Bank Group guarantee products,** including Multilateral Investment Guarantee Agency (MIGA)-backed local-currency transactions, have in some cases helped lenders extend longer-tenor domestic financing or support local-currency lending.[23]
- **Nigeria's World Bank DARES** initiative, while not a pure warehousing vehicle, includes mini-grid tender structures that aggregate demand and prepare project portfolios. It is beginning to be paired with dedicated financing facilities for developers — making it relevant to the aggregation and structured finance discussion.[24]

- **Private Infrastructure Development Group (PIDG) GuarantCo** provides local-currency credit solutions and guarantees for loans and bonds that help bridge the gap between project needs and domestic market terms.[25]

These minigrid-adjacent precedents matter because they show that many of the relevant building blocks already exist elsewhere in the market, including local-currency facilities, guarantees, tenor-extension mechanisms, and aggregation structures.

Taken together with the minigrid-specific examples above, they suggest that the challenge is less the absence of solutions than the need to adapt them into practical facilities that fit minigrid realities: small ticket sizes, limited tenors, uneven data quality, and early-stage operating risk. In the near term, the priority is therefore not "perfect hedging," but building pathways that reduce fragility from currency mismatch, lower the all-in cost of capital through disciplined risk allocation, and create investable, repeatable products that can scale.

That, in turn, points to the next question for AMP countries: which lessons are most relevant in each market, and how should they be sequenced alongside other derisking priorities?

B. What lessons are most relevant for AMP countries?

Insights for AMP countries: Cross-country lessons and best practices

These lessons are best read as sequencing guidance, not a single recipe. DREI experience across AMP shows that financing risk is high in many markets, but currency risk varies materially by country. The implication is not that FX tools matter less; it is that they work best when matched to the wider risk profile of each market.

As AMP countries sit at very different stages of minigrid market maturity and capital-market depth, this section distinguishes between deeper markets (where pension/insurance capital and capital-market issuance can be realistic), and thinner markets (where bank balance sheets, national development banks, and donor-supported risk-sharing are often the only viable near-term pathway).

1) Start with projects financiers can actually underwrite.

Minigrid diligence and investability can be improved through standardized contracts, credible demand and operating data

A recurring constraint is not currency risk alone, but the combination of weak demand visibility, regulatory gaps, limited track record, thin project pipelines, and hard-currency exposure. Compounding these is that many minigrid projects are still not viewed as bankable by domestic capital providers such as banks and pension funds. Small ticket sizes, limited operating history, collection risk, and regulatory uncertainty lead to conservative underwriting and higher pricing for mini-grid finance — especially when developers lack an established local track record.[26]

Currency mismatch makes the challenge harder by adding broader macro-level currency risks, including depreciation, foreign exchange shortages, and constraints on convertibility or transfer, which are difficult to assess and price at the individual project level. In early-stage AMP markets such as Malawi, Eswatini, and Zambia, the fastest progress often comes from strengthening the core building blocks of minigrid projects so

financiers can evaluate risk and underwrite them with greater confidence. This includes standardized contracts, credible evidence of demand, realistic assumptions about productive use, and a consistent package of operating and collections data that financiers can actually use in their credit assessment.

2) Use guarantees and small first-loss where they change pricing or tenor.

Credit enhancement and small first-loss can shift risk off developers and unlock longer tenor and reduce pricing.

A credible guarantee can make minigrid projects easier to finance by transferring part of the credit risk to a stronger counterparty. This gives investors more confidence, because they can anchor their assessment in the guarantor's credit quality rather than relying entirely on project risks they may be less familiar with. That is especially important for minigrid developers without a long operating history, or in early-stage markets where capital is limited and investors have less experience with the sector. A small, time-bound first-loss tranche serves a different purpose. It can absorb initial losses as a portfolio matures, help fill gaps where developer equity is scarce, and lower the cost of financing, without taking on risk across the entire capital stack.

In markets where domestic institutional capital is available, combining credit enhancement with standardization can help unlock longer-tenor, local-currency financing. In markets where that capital base is not yet in place, guarantees are often more useful initially for bringing local banks onto the balance sheet or supporting national development bank warehousing until enough performance data has been built up.

3) Standardize and aggregate before chasing scale finance.

Standardization and aggregation can reduce friction and make replication possible.

Across interviews, stakeholders emphasized that a visible, aggregated, and repeatable pipeline, combined with standard documentation and a basic reporting pack, can significantly reduce deal-by-deal friction and shorten time to close. That reporting pack might include metrics such as uptime, on-time payments, DSCR ranges, arrears aging, reserve levels, and the rules governing how cash moves through escrow.

Aggregation also matters for a practical reason: many guarantee structures and capital-market approaches only become worth pursuing once portfolios are large enough to justify the underwriting effort and transaction costs. In smaller markets, this "issuer readiness" work, identifying and developing a pipeline, creating repeatable templates, and establishing consistent reporting, can be just as catalytic as the financial instrument itself.

4) Broaden the financier base only when the data and tenor are ready.

Expand the financier base with ratings/labels, and match tenor to asset life with disciplined monitoring.

Green or Environmental Social Governance (ESG) labels, together with familiar and standardized instruments such as bonds or notes, can broaden the pool of potential financiers, including pension funds, insurers, and asset managers with relevant mandates. This can improve product-market fit for institutional buyers and strengthen demand, as illustrated in the Nigeria case study.[27]

Where longer-tenor local-currency financing is available, strong and disciplined monitoring, including tracking revenues, uptime, and debt service coverage ratios, helps build confidence and lays the groundwork for later refinancing or capital-markets take-out, such as securitization or a guaranteed bond. In deeper markets like Nigeria, labels and ratings can often be used earlier. In thinner markets, they are more likely to become useful

later, once there is a more seasoned portfolio, a consistent reporting track record, and a clearer pathway for repeat issuance.

Implications for sequencing for thinner markets (AMP early-stage markets)

In early-stage AMP markets with limited project pipelines and shallow capital markets, stakeholders stressed that the main near-term constraint is often not the absence of sophisticated financial instruments, but rather the lack of bankable cash flows, lender familiarity, and sufficient scale. In Eswatini, for example, foreign exchange risk is often seen as secondary to more immediate issues around demand and productive use, meaning that capacity building and risk-sharing may be more relevant than a stand-alone FX facility. In Malawi, minigrids remain largely donor-funded, and local debt is often too expensive for projects to absorb. There, stakeholders emphasized the need to improve access to local-currency financing and to develop practical FX liquidity solutions for imports and other hard-currency obligations.

Typical sequencing in thinner markets:

1. Focus first on investability fundamentals and data (contracts, demand evidence, reporting)
2. Guaranteed/NDB-intermediated LCY lending or warehousing
3. Later: pooled issuance, bonds, and take-outs once scale and performance data exist

These four lessons point to viable instruments, structures, and sequencing. But across interviews, one broader message also emerged: even strong instruments are difficult to deliver without the execution capacity to put them into practice. In practical terms, that means the right teams, standardized templates and documentation, and monitoring systems that allow transactions to be originated, assessed, and managed consistently over time.

Execution enablers: The systems that make these solutions implementable

These lessons are most useful when the underlying systems are in place. In practice, financiers are not only assessing the assets themselves; they are also assessing whether the issuer has the ability to originate projects, structure transactions, and manage them effectively over time. A sponsor and lender ecosystem with a strong track record of execution reduces the risk of delays, cost overruns, weak collections, and gaps in reporting. That means fewer surprises in cash flows and, in many cases, a lower risk premium.

- **Dedicated renewable energy credit teams at lenders, guarantors, and national development banks (NDBs) can build sector knowledge and speed up approvals.** These teams need to be able to assess minigrid demand and load forecasts, customer mix and the share of productive use, tariff and indexation structures, seasonal cash flow patterns, reserve requirements, and escrow or waterfall arrangements. They should also be able to set financing covenants and monitoring requirements that fit the sector, such as DSCRs, uptime, and arrears buckets, with a clear reporting cadence.
- **Standard PPAs and SLAs can reduce legal uncertainty and shorten diligence.** Using pre-agreed templates with clear rules on metering, billing, disconnection, service levels, curtailment, indexation, and remedies can make negotiations faster and improve enforceability. Standardized documentation also makes it easier to aggregate projects, compare transactions on a like-for-like basis, and eventually support securitization.
- **Sector-specific rating models, or rating grids agreed with guarantors,** can replace generic SME screening with metrics that better reflect what actually drives performance in distributed energy. These may include growth in electricity sales, the share of revenue from non-residential or productive-use customers, collection efficiency, arrears aging, prepaid penetration, technical

losses, site concentration, DSCR history, and cash reserves. More consistent scoring can speed up approvals and help support ratings, or rating-like credit enhancement, that broadens the investor base.

These lessons are most actionable when the "plumbing" is in place. In practice, financiers do not just price assets; they price the issuer's ability to originate, structure, and run them to plan. A sponsor and lender ecosystem with proven execution lowers the probability of delays, cost overruns, weak collections, or data gaps, meaning fewer surprises in cash flows and a lower risk premium.

- **Clear enabling-environment conditions also matter.** Even the best teams and templates will not unlock finance if the surrounding rules remain unclear. In many AMP markets, financiers still need transparent electrification planning, credible minigrid regulation, clear licensing and permitting processes, workable tariff and grid-arrival rules, and enforceable technical standards before they can assess projects with confidence.

When the right teams, standard templates, and fit-for-purpose rating tools are in place, each deal becomes faster and cheaper to assess, credit committees face fewer unknowns, and financing terms become more consistent across transactions. That kind of repeatability is what ultimately helps reduce financing costs and makes scale possible. These execution enablers complement, rather than replace, the wider policy and planning reforms highlighted through DREI.

C. What should key stakeholders do next?

Unlocking solutions: Action priorities for key stakeholders

These are action priorities rather than rigid roles. In most AMP markets, progress will require governments, DFIs, financiers, and developers to move together. The recommendations below focus on actions that either (1) reduce exposure to currency risk, (2) reallocate it to stronger balance sheets, or (3) improve investability so local currency solutions become feasible.

Development Finance Institutions (DFIs) and Donors

- Expand facilities that provide **long-term LCY credit lines, tenor-extension mechanisms,** or **guarantees**, including by **capitalizing NDBs** or specialized intermediaries to on-lend in local currency where commercial tenors are too short.
- Fund **time-bound first-loss tranches** or **hedging subsidies** through dedicated FX risk-management funds to make early transactions viable while portfolios "season" and underwriting comfort improves. An example pathway could be to replicate sovereign/DFI-intermediated LCY on-lending models (e.g., funding local development banks to lend in local currency where bank appetite is limited).
- Support **scalable hedging capacity** (where viable) by backing specialized providers and/or providing risk capital/guarantee backstops that can lower costs and expand volumes (e.g., TCX).[28]
- Use AAA balance sheets to **issue local-currency bonds** in African markets and on-lend proceeds, extending tenor and reducing refinancing risk where domestic liquidity is constrained.
- Broaden **political risk insurance** to better cover currency inconvertibility and transfer risks for minigrids, providing comfort to foreign investors and any facilities operating in stressed FX environments.

Commercial Investors and Banks

- Proactively seek **local-currency investment opportunities** rather than defaulting to US dollars.
- In deeper markets, partner with guarantors to invest in **credit-enhanced LCY notes** or pooled vehicles (portfolio approaches that reach scale for underwriting).
- Support **aggregation/warehousing** structures that pool small assets into investable scale reducing transaction costs and making credit enhancement, local-currency lending, or selective hedging more viable. Programmatic models such as DARES also suggest that aggregation can be combined with tenders and follow-on financing facilities, rather than relying only on stand-alone warehousing vehicles.
- Where local banks are constrained, international and regional banks can play a catalytic role by **risk-sharing with local banks**, including:
    - exploring **cross-currency swap lines** (where feasible), and/or
    - supporting the development of **nascent local derivative markets** and market infrastructure over time.
- Emphasize **demonstration**: Precedent LCY transactions (even at modest initial volumes) can build an investable track record that gradually increases institutional appetite and capital-market activity.

Minigrid Developers

- **Replace "mitigate" with "manage" for consistency:** Developers can take several steps to **manage** currency risk at the project level.
- **Maximize local sourcing** of both capital and components where feasible (borrowing from local financiers; procuring equipment from regional suppliers/distributors who sell in local currency). This creates a partial "natural hedge" by matching some costs to revenue currency.
- Where feasible (and relevant), structure anchor revenue that is less FX-sensitive:
    - For example, an anchor client paying in a stable currency, or
    - structuring PPAs for commercial clients in hard currency (noting this is unrealistic for many rural projects).
- Treat productive use as part of **core modeling and operating strategy** — not an afterthought or "upside." Where productive use is relied upon, ensure assumptions are evidence-based and reflected in lender reporting (customer mix, consumption trends, collection performance), not optimistic projections.
- Run depreciation sensitivity analysis (10%, 20%, 30%) and link it to **specific contingencies**: reserve sizing (or currency reserve accounts where possible), procurement timing, and covenant buffers — not just analysis.
- Improve demand forecasting using real data from existing projects to reduce lender uncertainty on revenues and strengthen bankability.
- Be transparent about FX exposure in business cases and financial models to make a stronger case to governments/donors for targeted support.

Policymakers and Regulators

- Sequence currency measures alongside planning, tariff, and grid-arrival reforms; FX tools will not crowd in finance if these fundamentals remain unclear.
- Strengthen **national financial institutions** (e.g., capitalize a domestic development bank or infrastructure fund) so they can originate/warehouse **long-term local-currency loans** when commercial tenors are too short.

- Mobilize domestic institutional capital via reforms (e.g., pension-fund reforms that enable more patient LCY allocation to infrastructure), supported by appropriate risk standards and eligible-asset definitions.
- Implement regulatory frameworks that address currency risk pragmatically, such as:
    - permitting transparent tariff adjustment/indexation rules (with affordability safeguards where needed), and/or
    - enabling escrow and cash-management structures that improve lender confidence and liquidity management.
- Consider **currency liquidity facilities** or guarantee funds (potentially via central banks) to help priority infrastructure access FX for essential imports and obligations; even if full convertibility guarantees are not feasible, governments can prioritize energy projects for access to scarce FX.
- Participate in regional risk pooling/insurance mechanisms (e.g., programs that insure against currency transfer restrictions) and continue building local capital markets so pension funds can invest in domestic energy instruments over time.[29]

Blended Finance Facilities, Philanthropy, and Similar Donor Initiatives

- Deploy concessional capital in repeatable ways that **derisk currency exposure for others**, most commonly via:
    - small, time-bound first-loss cover (subordinated tranches), and/or
    - partial credit guarantees that improve credit quality and enable LCY participation.
- Aggregate projects to achieve investable scale — enabling pooled underwriting, lowering diligence costs, and making selective hedging or credit enhancement more viable.
- Explore regional facilities (e.g., an **"Africa Minigrid FX Risk Pool"**) with donor support to offer low-cost hedges/guarantees across multiple countries **where scale and governance are credible**.
- Fund **technical assistance for transaction structuring** (guarantees, escrow/cash waterfalls, reporting packs, issuer readiness) so pilots can replicate (e.g., GET.invest advisory support on engaging local financiers and guarantee providers).[30]

3. Conclusion

Managing currency risk is challenging but it is central to whether minigrids can move from pilot-scale deployment to investable infrastructure. In many African contexts, currency risk cannot be fully eliminated in the short term; the practical objective is to reduce mismatch, allocate residual exposure to stronger balance sheets, and build investable structures that financiers can price with confidence. Done well, this lowers the cost of capital and extends tenor, which matters directly for affordability and scale in a highly capital-intensive sector.

The evidence in this brief points to a consistent pattern. The most workable approaches combine: (1) local-currency pathways where feasible; (2) credit enhancement and small, time-bound first-loss to shift early-stage risk off developers; and (3) standardization and aggregation so transactions become repeatable and diligence costs fall. Rwanda and Nigeria illustrate these mechanisms under different market conditions, while stakeholder insights from thinner AMP markets reinforce a crucial reality: progress often depends as much on bankability fundamentals, pipeline readiness, and lender familiarity as on the instrument itself.

For AMP countries, the near-term agenda is therefore two-track. In deeper markets with credible domestic institutional investors, the priority is to convert portfolios into investable local-currency instruments through standard documentation, transparent reporting, and appropriately structured credit enhancement. In thinner markets, the more credible path is to start with bankability, NDB/DFI intermediation, targeted guarantees or warehousing, and the enabling conditions highlighted through DREI—especially clearer planning, more credible regulation, and stronger visibility on tariffs, grid arrival, and pipeline development.

Across all contexts, success depends on collaboration: governments, DFIs, financiers, and developers each control different pieces of the risk-allocation puzzle. No single actor can solve currency risk — or the wider enabling-environment constraints that shape financing decisions — alone. Therefore, collaboration is the most credible route to lowering financing costs and turning more minigrid markets into investable ones.

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