

PAYGo at a Crossroads



Is PAYGo Credit Fit for the Next 100 Million Customers?
An Exploratory Paper by MAF Lab and Acumen

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Summary

Over the past decade, pay-as-you-go (PAYGo) solar has transformed access to energy for underserved households, particularly in rural and peri-urban markets. Millions of customers have gained access to electricity, and the sector has shown that deferred-payment models can reach populations long excluded from traditional energy and finance systems.

As PAYGo expands into harder-to-reach geographies and lower-income segments, challenges around repayment, affordability, and financial sustainability become more pronounced. While sales volumes continue to grow, a significant share of contracts does not reach completion. One dataset from Micro Asset Finance Lab (MAF Lab¹), a specialist advisory platform supporting PAYGo and asset-finance companies on credit management, indicates that only 51% of customers fully repay their loans when measured at 1.5 times the original loan tenor.

These high non-completion and default rates have material consequences. Many customers never realise the full intended impact, as they lose access to products due to an inability to pay. The cost of defaults is ultimately borne by paying customers through higher prices, increasing the cost of credit, and creating a vicious cycle that undermines affordability. At the same time, elevated default rates place pressure on business sustainability and investor confidence, constraining access to capital and limiting the sector's ability to scale.

Well-designed affordability subsidies play a critical role in addressing these challenges, particularly for the hardest-to-reach and lowest-income customer segments. Institutions such as the World Bank, Nordic Environment Finance Corporation (NEFCO), and others have been instrumental in supporting such mechanisms, which remain essential to inclusive energy access. These interventions are necessary and should continue, but they are not the focus of this paper. Here, we focus instead on the structure of the Solar Home System (SHS) PAYGo credit model itself.

Integrating sales and credit within a single organisation creates persistent incentive conflicts that can weaken credit discipline over time, contributing to higher bad debt and rising prices. While incremental improvements have helped, they have not fully resolved these structural tensions. The paper therefore explores whether separating credit from sales and distribution, through carefully designed pilots, could improve outcomes in certain segments without undermining access or distributor viability. Rather than offering definitive conclusions, the aim is to support a more grounded, evidence-based exploration of how PAYGo credit models might evolve as the sector continues to scale.

Why revisit PAYGo credit architecture now?

PAYGo off-grid solar has delivered remarkable progress in energy access. Over the past decade, companies have built sophisticated last-mile distribution networks, improved product quality, and reached customers in markets where conventional energy delivery models have struggled to operate. 9.3 million off-grid solar energy kits were sold in 2024, including 3.6 million multi-light systems and SHS², and the vast majority of PAYGo customers report meaningful improvements in quality of life³.

Yet success has brought new pressures. As the sector extends into more remote geographies and serves customers with lower and more volatile incomes, questions around affordability, repayment performance, and financial sustainability have become more pronounced. These challenges are not uniform across markets or companies, nor do they imply that PAYGo models are failing. Rather, they reflect the increasing difficulty of extending credit responsibly in environments characterised by income volatility, limited buffers, and high operating costs, raising the question of whether the tools and structures we have now are fit for that purpose.

Building on earlier work, including MAF Lab's Rethinking Rural Asset Finance, this paper asks a practical question: what happens when credit and distribution are deliberately separated, as is common practice in high-income markets, and under what conditions might this improve outcomes? In these markets, retailers typically focus on product sales and after-sales service, while credit is provided by (most often) regulated financial institutions or specialist consumer-finance providers operating under distinct risk, pricing, and consumer-protection frameworks. The paper does not argue that unbundling is universally superior, nor that integrated models should be completely abandoned in the energy access context. Instead, it explores whether alternative credit architectures may help address specific constraints as PAYGo moves further downmarket.

The price of inclusion: understanding the true cost of credit

Headline sales figures tell only part of the PAYGo story. According to the global association for the off-grid solar energy industry (GOGLA), its members collect on average around 72% of sales revenue⁴, a figure that aligns with MAF Lab research, based on their dataset, showing 71% of sales revenue repaid when measured at 1.5 times the loan tenor. MAF Lab research further indicates that only 51% of customers fully repay their loan (again measured at 1.5 times the loan tenor). This contrasts sharply with microfinance institutions, which, for loans of comparable size, typically achieve repayment rates of 95–99%⁵.

Affordability is therefore not only shaped by product costs or distribution challenges, but also by the true cost of extending credit. Analysis by The Energy Sector Management Assistance Program (ESMAP) shows that bad debt is the second-largest cost component after manufacturing, directly accounting for approximately 24% of the total retail price of an average PAYGo solar system. Beyond this direct impact, high levels of bad debt also drive up operational costs, as customers at risk of default require intensive follow-up, field visits, and collection efforts. As portfolio risk increases, financing costs tend to rise further. Less often considered is the fact that most PAYGo contracts do not account for the time value of money, meaning delayed repayment can materially erode the real value of revenue, even where customers ultimately repay. Together, these effects mean that credit risk management is central to sustaining affordability⁶.

These dynamics are often underappreciated. In an effort to maximize reach, PAYGo models have historically prioritized accessibility and speed - often deliberately - over formal credit screening. While this approach has enabled impressive scale, it also means that the cost of weak credit outcomes is ultimately embedded in the price paid by all customers. In practice, customers who repay on time cross-subsidize those who do not.

Because margins are thin, these effects compound quickly. For households with volatile incomes, even small increases in price or repayment burden can materially affect both uptake and repayment behaviour. High levels of bad debt not only increase prices directly but also trigger costly downstream processes, including intensive collections, field visits, repossessions, and dispute resolution. Credit risk management, therefore, underpins the long-term financial sustainability of PAYGo models.

Why integrated PAYGo models are under strain

Integrated PAYGo companies are not failing; they are being asked to excel at multiple demanding functions simultaneously. Last-mile distribution, customer acquisition, and after-sales service require speed, local presence, and sales-driven incentives. Credit underwriting and portfolio management, by contrast, require discipline, risk awareness, and a longer-term perspective. Capital management adds yet another layer of complexity.

In many sectors, these functions are deliberately separated or insulated through governance arrangements. For most PAYGo businesses, however, they are often combined within a single organization, creating structural tensions. Sales teams operate under immediate pressure to close transactions, while the consequences of weak credit decisions typically materialize months later and are borne elsewhere in the organization.

In practice, this tension can manifest in compressed credit assessments, unsustainably low down payments and high loan-to-value ratios, rapid onboarding and limited customer education, and reactive portfolio management. These dynamics contrast with the practices commonly

observed in microfinance institutions (MFIs). MFIs place strong emphasis on structured credit analysis, not only to manage risk but also to protect customers from over-indebtedness. They typically invest significant time in client education, ensuring that borrowers fully understand the commitment they are entering into. When repayment difficulties arise, MFIs are more likely to pursue sustainable resolution strategies, rather than relying primarily on enforcement or disconnection.

These differences do not reflect a lack of intent or effort on the part of PAYGo companies. Rather, they highlight how integrating sales and credit within a single operating model makes it inherently difficult to apply the same depth of credit discipline and customer engagement, particularly at scale and under short-term pressure. However, these differences may also reflect structural differences between the two markets, including the inherent difficulty of applying more intensive credit underwriting to very small loan sizes (often around US\$150), where limited absolute margins leave little room to support the transaction costs associated with rigorous credit assessment and customer engagement, compared to loans of US\$500 or US\$1,000.

What has been tried — and why it fell short

The PAYGo sector has not stood still. Over the past decade, companies and their partners have experimented with multiple approaches to strengthen credit outcomes.

Partnerships with microfinance institutions offered access to established credit expertise but often struggled to scale due to misaligned incentives, operational complexity, and differing risk appetites.

Off-balance-sheet (OBS) financing through special purpose vehicles has improved transparency for funders and shown promising aspects. Where cash advances from OBS structures are closely linked to portfolio performance, companies face stronger incentives to tighten credit standards in order to sustain healthy cash flows. In response, some have introduced more stringent vetting criteria or adjusted credit decisioning to improve advance rates. However, to date, these structures remain available to only a small number of companies, constraining their broader applicability.

More recently, several companies have invested in what has become known as PAYGo 2.0: an operating model that treats credit as a core product rather than a by-product of asset sales. In practice, this involves dedicated internal credit teams, stronger customer screening and onboarding, and more proactive post-sale customer engagement. Data shows measurable improvements in repayment performance⁷.

While each of these approaches has delivered incremental gains, none has fully resolved the underlying trade-offs between growth, affordability, and credit discipline. Over time, credit standards have often softened in response to commercial pressures, particularly where governance arrangements did not fully insulate credit decision-making.

MAF-Lab's portfolio data illustrates how these trade-offs re-emerge under rapid growth, even where PAYGo 2.0 measures have been introduced. One illustrative case from an East African market shows how this dynamic can play out in practice: following the introduction of a government-backed results-based financing initiative, a distributor increased sales volumes by more than 250 percent, accompanied by rapid recruitment of sales agents and field staff. Credit team capacity, however, remained unchanged, resulting in average credit assessments of approximately six minutes. Within this timeframe, credit officers were expected to assess creditworthiness, complete KYC checks, contact references, and explain loan terms, underscoring how commercial expansion can quickly erode credit discipline and customer protection when governance and resourcing do not scale in parallel.

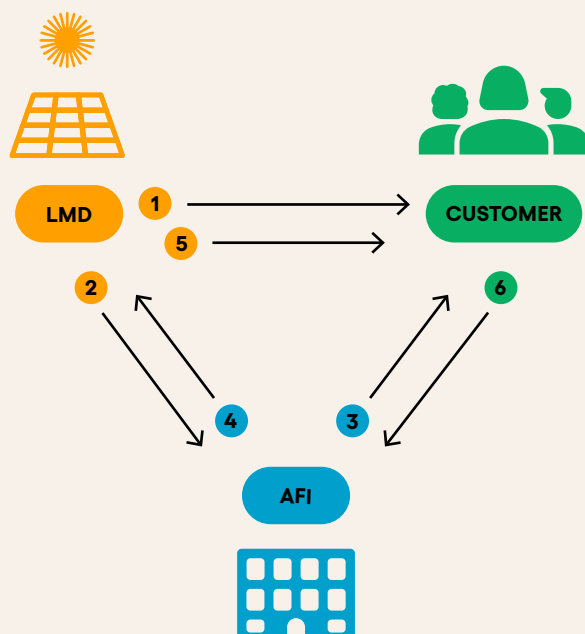
Exploring unbundling

In this paper, unbundling refers to separating credit operations from sales and distribution, rather than managing both within a single integrated organization. In practice, this can take two main forms: spinning off credit activities into a new standalone asset finance institution (same owners, separate leadership), or outsourcing credit operations to an external lending institution.

In both these unbundled models, the Last Mile Distributor (LMD) remains responsible for sales, installation, and after-sales service, while the Asset Finance Institution (AFI) assumes full responsibility for credit assessment and approval, portfolio management, capital raising, and regulatory compliance. The relationship is governed by a detailed Service Level Agreement that sets out the practical terms of collaboration, including data sharing requirements, credit decision timelines, customer handover and escalation

processes, field support responsibilities, and compensation arrangements. The objective is to ensure a smooth customer journey and clear, day-to-day coordination between the AFI and the LMD.

Although roles are clearly defined, interdependence remains. With most customers being remote, and AFIs typically lacking their own field teams, AFIs will rely on LMDs to conduct in-person visits where customers cannot be reached remotely and, if all recovery options have been exhausted, to carry out repossessions. These activities would be performed under the Service Level Agreement, with the AFI compensating the LMD for providing this field support. AFIs may also remain dependent on manufacturers for token issuance and lock-out functionality, but lock-out technology is most likely to serve only as a supporting tool; AFIs are unlikely to center credit risk management on device lock-outs.



- 1 LMD identifies customer and product need
- 2 LMD supports the customer in AFI credit application
- 3 AFI conducts an independent credit assessment
- 4 Upon approval, AFI disburses funds to LMD
- 5 LMD installs product and provides after-sales service
- 6 AFI manages repayment and portfolio monitoring

What could improve, and what might not

The central hypothesis behind unbundling is that specialised, independent credit management could reduce bad debt and operational drag, improving affordability and sustainability over time. Clearer underwriting standards and portfolio-level risk management may also strengthen customer protection by reducing overfinancing.

However, these outcomes should not be assumed. PAYGo lending differs materially from traditional microfinance, and unbundling introduces new costs related to compliance, governance, and coordination. Lower bad debt does not

automatically translate into lower prices, particularly in early stages before track records are established, and in the short-term, tougher credit checks may also end up excluding those low-income users that we are trying to reach in the drive toward universal energy access (see 'Different segments, different solutions').

What unbundling clearly changes is incentive alignment. The separation reduces the risk that credit decisions are compromised by short-term cash flow pressures within the distribution business. Whether this leads to better outcomes depends on execution, context, and scale.



Pilots are essential

These questions cannot be resolved through theory alone. Pilots are needed to test whether unbundled credit architectures can improve outcomes without undermining access or distributor viability.

Key questions include:

- **Sales and distribution:** How does independent credit assessment affect Last Mile Distributor sales volumes, conversion rates, and field productivity?
- **Customer outcomes:** Does independent credit management improve the customer's overall cost of credit, satisfaction, and protection?
- **Portfolio performance:** What is the impact of unbundling on repayment rates, arrears, and long-term portfolio quality?
- **Distributor sustainability:** How does unbundling affect the financial sustainability and scalability of LMDs?
- **Access to finance:** Does unbundling provide more sustainable access to finance for last-mile customers over time? What are the implications for reaching the poorest customers?

Pilots allow these trade-offs to be observed in real operating environments, with room for iteration and learning.



Early examples from practice

KIMS Microfinance (Somalia)

Between 2023 and 2024, KIMS Microfinance piloted PAYGo solar lending and observed strong demand and solid repayment performance, though below the exceptionally high levels of its core MFI portfolio. A key lesson was that credit outcomes improved when lending decisions and portfolio management were handled by dedicated credit professionals.

In response, KIMS, with the support of Acumen, established an operationally independent solar distribution company, while retaining all credit activities within the MFI. Early experience suggests clearer accountability and preservation of credit discipline, albeit within defined boundaries around loan sizes and geographic scope.

In24 (multi-country)

MAF Lab is supporting multi-country pilots with PAYGo companies in Uganda, Malawi, and Mozambique. Under these pilots, participating distributors outsource credit underwriting, portfolio management, and risk monitoring to in24, a specialized asset finance provider owned by a non-profit foundation, and established specifically to test and scale unbundled credit models in lower-income and harder-to-reach markets.

The pilots are designed to assess how a dedicated Asset Finance Institution performs when serving multiple Last Mile Distributors simultaneously. They focus on practical outcomes, including repayment performance, operating costs, customer selection, portfolio quality, and the impact on distributor sales volumes and margins. Importantly, the pilots are structured to allow close monitoring, iterative adjustment, and comparison with existing integrated PAYGo models.

While still at an early stage, initial experience suggests that aggregating credit activities across multiple distributors in one country creates economies of scale in credit assessment, monitoring, and compliance, while preserving clear accountability between sales and credit functions. The pilots are explicitly intended to test whether these potential benefits translate into sustainable and scalable outcomes in practice.

Different segments, different solutions

Unbundling is not a universal solution. As with PAYGo itself, its relevance depends strongly on customer segment, income profile, and use case. Different groups face fundamentally different affordability constraints and therefore require different financing and delivery approaches.

1. Extremely low-income rural households

For households living on less than approximately US\$2 per day, affordability is the dominant constraint. These customers are best served with small solar kits or lanterns at low price points (<US\$75). In this segment, the cost of formal credit assessment typically outweighs the potential benefit of lending. Customer protection is paramount, and credit-based models risk doing more harm than good. Highly subsidized cash sales, results-based financing, or energy-as-a-service models are generally more appropriate than either integrated PAYGo or unbundled credit.

2. Low- to lower-middle-income rural households

Households with modest but more stable incomes often seek mass-market appliances in the US\$100–2,000 range. For this segment, deferred payment remains essential to affordability. Both integrated PAYGo models and unbundled credit architectures can be relevant here. The key requirement is that repayment schedules align with household cash flows and that credit is priced and managed carefully to avoid overfinancing. Graduation over time, toward larger systems or additional assets, can play an important role.

3. Rural entrepreneurs and productive

users

For rural entrepreneurs purchasing productive-use assets, such as solar-powered appliances or agricultural equipment, credit design becomes even more critical. Incomes are often even seasonal, and investment returns vary. Both PAYGo and unbundled models may serve this segment, but only where credit assessment takes productivity and income timing into account. Here, unbundling may offer particular advantages by enabling more tailored credit analysis and repayment structures, while supporting asset-based growth and loan graduation.

4. Urban or higher-income customers

Customers with higher or more predictable incomes, typically in urban settings, are generally better served by conventional consumer finance. Larger inverter-based systems and appliances can often be financed through banks or MFIs specialising in consumer lending. In these contexts, PAYGo-style models, and by extension unbundled PAYGo credit, are less essential, as alternative financial infrastructure already exists.

Taken together, these distinctions underscore that unbundling is best viewed as a complementary architecture, not a replacement for PAYGo. Its potential lies primarily in segments where credit risk has become a binding constraint but where affordability still depends on access to finance. For other segments, different models will continue to play a more appropriate role.

Conclusion: a hypothesis worth testing

Unbundling does not eliminate the fundamental challenge of extending credit to households with volatile incomes and limited buffers. What it offers is a framework that may be better suited to managing that risk deliberately and transparently in certain contexts.

Whether this translates into improved affordability, access, and sustainability remains an empirical question. Early pilots suggest promise, but also highlight real trade-offs. For these reasons, unbundling should be approached as a disciplined experiment, one that complements, rather than replaces, the diverse models that have driven off-grid solar and PAYGo's achievements to date.

As the sector matures, a central question is whether the off-grid PAYGo sector will increasingly follow the unbundled models common in more mature economies and sectors, where sales and credit are typically handled by specialized actors, or whether the realities of lower-income and harder-to-reach contexts will continue to justify more integrated approaches. Ensuring the PAYGo model is fit for the next 100 million customers will require carefully designed pilots to determine which models work best, for which segments and markets, under which conditions, and at what cost.



Endnotes

¹ Micro Asset Finance Lab (website).

² 2024 Global Off-Grid Solar Market Report (GOGLA, 2025).

³ Global Off-Grid Solar Market Report Annual Sales & Impact Data (GOGLA, 2025); Powering Opportunity in East Africa (GOGLA, 2019).

⁴ Measuring What Matters: PAYGo KPIs to Drive Smarter Growth and Investment (GOGLA, 2025).

⁵ For instance, ASA International (2025) reported a default rate of 2.2% in 2024 (2.5 million borrowers, \$178 average loan).

⁶ Off-Grid Solar Market Trend Report 2024 (ESMAP, 2024).

⁷ PAYGo 2.0 Pioneers: Early insights and evidence (MAF Lab, 2025)



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To learn more contact:

Joel Sam
Associate Director,
Hardest-to-Reach Initiative
jsam@acumen.org

Willem Nolens
Managing Director, MAF Lab
willem@maf-lab.com