MYANMAR ROOFTOP OFF-GRID SOLAR MARKET ASSESSMENT

September 2026

ESMAP
Energy Sector Management Assistance Program

THE WORLD BANK
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This report was prepared by the team comprised of Myoe Myint (Senior Energy Specialist) – team leader, Khin Aye Yee (Operations Officer), Nicole Silvya Bouris (Energy Consultant), Yaewon Hyun (Energy Consultant), Maung Maung Kyaw Thar (Energy Consultant) Thida Aung (Programme Assistant) under the guidance of Claudia Vasquez (Practice Manager, EAP Energy), Ms. Melinda Good (Division Director for Myanmar and Thailand), Ms. Anne Tully (Country Manager), and Sudeshna Ghosh Banerjee (Regional Practice Director, Infrastructure).

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About ESMAP

The Energy Sector Management Assistance Program (ESMAP) is a partnership between the World Bank and over 20 partners to help low- and middle-income countries reduce poverty and boost growth through sustainable energy solutions. ESMAP's analytical and advisory services are fully integrated within the World Bank's country financing and policy dialogue in the energy sector. Through the World Bank Group (WBG), ESMAP works to accelerate the energy transition required to achieve Sustainable Development Goal 7 (SDG7) to ensure access to affordable, reliable, sustainable, and modern energy for all. It helps to shape WBG strategies and programs to achieve the WBG Climate Change Action Plan targets. Learn more at: https://esmap.org

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Acronyms and Key Terms

Affiliate - Affiliate companies are connected to partner organizations involved in the semiannual Global Off-Grid Lighting Association (GOGLA) sales data reporting process. This matrix of companies includes GOGLA members, companies selling products that meet VeraSol quality standards, and appliance companies that participated in the Global LEAP Awards or engage with the Low Energy Inclusive Appliances (LEIA) program. It is important to note that not all products produced by affiliate companies meet VeraSol quality standards, but stakeholders assume that all products produced by affiliate companies are of reasonable quality.

Agri-processing - The industrial or semi-industrial transformation of agricultural raw materials (such as paddy, pulses, and beans) into value-added products for consumption, commercial distribution, or further manufacturing

BESS - Battery Energy Storage System. A system that stores electricity in batteries for later use, helping improve reliability and reduce dependence on the grid or generators.

CAPEX - Capital Expenditure. Costs associated with the procurement, transportation, and installation of infrastructure such as solar photovoltaic (PV) systems, battery storage, inverters, and other required equipment. These typically require significant up-front costs, especially in remote or off-grid areas.

C&I - Commercial and Industrial. Businesses and facilities with commercial or industrial electricity demand, often including factories, warehouses, farms, commercial centers, and other enterprises.

Diesel Generator - A generator powered by diesel fuel that provides backup or primary electricity supply where grid access is unavailable or unreliable.

Distributed Energy/Decentralized Energy - Electricity generated close to where it is used rather than supplied only through the national grid. In this report, it mainly refers to rooftop or off-grid solar systems and related technologies.

EaaS - Energy as a Service. A service delivery model widely used in the energy sector. In this business model, a third-party service provider installs, operates, and maintains an energy system, such as an off-grid solar solution, while end users (for example, households, businesses, or public institutions) pay for the energy consumed or access to the service over time.

EPC - Engineering, Procurement, and Construction. Under the EPC approach, the government or a donor finances the full up-front cost of the electrification system (for example, a solar PV installation for a school or health center). An Energy Service Company (ESCO) is contracted to design, procure, and install the system, then hands it over once construction is complete. The institution or the beneficiary ministry then owns the system and is responsible for operations, maintenance, and replacement over time. While EPC ensures quick deployment and full ownership by the public sector, challenges often arise around long-term sustainability because the local institution may lack the budget, capacity, or technical expertise to maintain the system once warranties expire.

ESCO - Energy Service Company. A company that develops, finances, installs, and/or operates energy systems and may provide electricity under service-based contracts such as EaaS or power purchase agreements (PPAs).

ESMAP - The Energy Sector Management Assistance Program. A partnership between the World Bank and over 20 partners to help low- and middle-income countries reduce poverty and boost growth through sustainable energy solutions. ESMAP's analytical and advisory services are fully integrated within the World Bank's country financing and policy dialogue in the energy sector. Learn more at https://esmap.org.

FATF - Financial Action Task Force. An intergovernmental body established in 1989 that sets international standards for combating money laundering and terrorist financing.

FCV - Fragile and Conflict and Violence. Areas characterized by insecurity, political instability, or conflict.

FX - Foreign Exchange. The conversion or availability of one currency into another, especially relevant to the ability to access and transfer US dollars for imports and supplier payments.

GOGLA - Global Off-Grid Lighting Association. The global industry association for the off-grid solar sector, which collects and publishes semiannual market data on solar energy kit sales.

Grid/National Grid - The centralized electricity network that transmits and distributes power to consumers.

HANS - Health Assistance and Nutrition Support. A World Bank project since May 2025 with the development objective of delivering essential health and nutrition services to vulnerable populations in Myanmar, with a focus on women and children affected by conflict and natural disasters.

ICRC - International Committee for the Red Cross. An independent humanitarian organization mandated under the Geneva Conventions to protect and assist victims of armed conflict and other situations of violence.

I-REC(E) - International Renewable Energy Certificate for Electricity. A market-based instrument that certifies electricity generation from renewable sources, with Smart Power Myanmar as the accredited local issuer.

IEC - International Electrotechnical Commission. The international body that develops technical standards relevant to solar panels, inverters, and batteries.

INGO - International Nongovernmental Organization. A nonprofit organization operating internationally.

IVA - Independent Verification Agent. A qualified third party responsible for verifying results against pre-agreed performance indicators.

kW - Kilowatt. A unit of power used to describe the capacity of an electricity generation system or the power demand of equipment.

kWh - Kilowatt-hour. A unit of energy representing 1 kW of electricity used for one hour.

LCOE - Levelized Cost of Energy. The full lifetime cost of generating 1 kWh of electricity from a given system, accounting for capital expenditure, operating costs, system lifetime, and performance ratio.

LNG - Liquefied Natural Gas. Natural gas that has been cooled into liquid form for storage and transport.

MFI - Microfinance Institution. A financial institution that provides small loans and other financial services to low-income households and small businesses.

Mini-grid - A localized electricity network that generates and distributes power independently of the national grid, often serving villages.

MMK - Myanmar Kyat. The national currency of Myanmar.

MOEE - Ministry of Electricity and Energy. The government ministry responsible for electricity and energy policy and administration in Myanmar.

MTF - Multi-Tier Framework. A framework used to measure access to electricity on a scale from Tier 0 (no access) to Tier 5 (full access) across seven attributes: Capacity, Availability, Reliability, Quality, Affordability, Formality, and Health and Safety.

NEP - National Electrification Project. World Bank's flagship electrification initiative to help increase access to electricity in Myanmar, supported by the World Bank from 2015 to 2020.

NGO - Nongovernmental Organization. A nonprofit that is often locally based and operates independently from the government.

Non-Affiliate Companies - Companies not within the matrix of affiliate companies are considered non-affiliate companies. Products distributed by non-affiliate companies are considered non-affiliate products. These companies do not report their sales to GOGLA, and much less is known about the quality and level of electricity access their products provide.

O&M - Operations and Maintenance. The ongoing activities required to ensure that a system functions reliably over time, including routine servicing, repairs, and replacement of components

Off-Grid Solar System - A stand-alone solar PV system, often paired with batteries, that provides electricity to institutions, households, small businesses, or communities not connected to the national grid.

PAYGo - Pay-As-You-Go. A financing or service model in which users make periodic payments for an energy system rather than paying the full cost up front.

PPA - Power Purchase Agreement. A contract under which a customer agrees to buy electricity generated by an ESCO at an agreed tariff over a defined period. A critical component of the EaaS model.

Public-Private Partnership for People's Prosperity (5Ps) - An inclusive framework designed to benefit the most vulnerable populations by leveraging private investment and expertise to deliver infrastructure and services. It explicitly recognizes that public and donor capital must be used to close affordability gaps and ensure that services reach and sustain those most in need.

PV - Photovoltaic. Technology that converts sunlight directly into electricity. In this report, the term refers specifically to solar panels.

PVOUT - Photovoltaic Power Output. A measure of the long-term average electricity yield from a solar system per unit of installed capacity.

RBF - Results-Based Financing. A range of financing mechanisms in which payments or financial or other rewards are provided only after the achievement and independent verification of pre-agreed results. These results can be outputs, intermediate outcomes, or final outcomes.

RBF+ - Responsible Business Fund Plus. A European Union-financed program in Myanmar providing matching grants to small and medium enterprises (SMEs) investing in responsible technologies, including solar.

Remote Monitoring - The use of digital communication and monitoring systems to track the performance, output, and condition of a solar system from another location.

Rooftop Solar - A solar photovoltaic system installed on a building roof to generate electricity for on-site use.

SEKs - Solar Energy Kits. Bundled, prepackaged systems designed to provide basic electricity access to households and small businesses in areas without grid electricity. The SEK category includes solar lanterns and solar home systems (SHS).

SENTRUM - Securing Energy Needs and Transition in RUral areas of Myanmar. Groupe de Recherches et d'Echanges Technologiques (GRET) is implementing a project to improve access to renewable electricity and the use of energy-efficient products by micro, small, and medium enterprises (MSMEs) and rural households in four regions of Myanmar.

SHS - Solar Home System. A stand-alone photovoltaic system providing electricity for multiple lights and appliances. In this report, SHS are divided into smaller SHS (3–49.9 Wp) for small appliances such as fans and larger SHS (50Wp and above) for devices in homes and small businesses, such as TVs or refrigerators.

Smaller SHS - Stand-alone photovoltaic systems providing electricity for multiple lights and small appliances such as fans. They broadly provide electricity access in the Tier 1–2 range of the MTF framework (3–49.9 Wp).

SME - Small and Medium Enterprise. A business that meets at least two of the three criteria: 10–300 employees, ≤US$15 million in revenue, and ≤ US$15 million in assets.

Larger SHS - More comprehensive stand-alone systems capable of powering lighting in multiple rooms and larger devices, such as TVs or refrigerators, in homes and small businesses (50 Wp and above).

Solar Lantern - Compact, portable lighting devices (below 3 Wp) powered by solar panels; primarily designed for single-point lighting with phone-charging capability. They provide electricity access below Tier 1 of the MTF framework — the most basic level of energy access.

SPM - Smart Power Myanmar. The organization that coordinated the internal health survey and broader market analysis referenced in this report.

Tariff - The price charged for electricity, usually expressed as a rate per unit of energy consumed.

Executive Summary

Key Findings

- **Solar is now the most cost-effective electrification option for a growing share of Myanmar's energy demand.** Monthly average diesel prices rose by nearly 900 percent in nominal terms, from MMK 682 per liter in January 2021 to MMK 6,057 per liter in April 2026, industrial grid tariffs increased by 80 percent in February 2026, and the cost of energy from large commercial and industrial (C&I) solar-plus-battery systems is at US$0.205 per kWh, now cheaper than the industrial grid tariff of US$0.250 per kWh.
- **The C&I segment is approaching commercial viability and is likely to continue growing largely on commercial terms.** Approximately 110 to 170 new C&I projects are delivered every year, payback periods have shortened to one to three years, and at least seven commercial power purchase agreement (PPA) projects have been identified to date.
- **The binding constraint on solar market growth is the absence of viable financing channels, not the absence of demand.** Liquidity exists in Myanmar's financial system but is not deployed in solar. Commercial banks mandate collateral requirements of 100 to 200 percent of loan value and lack technical frameworks to assess solar-specific risk.
- **Community facilities remain structurally excluded from the prevailing market.** Among health facilities surveyed, 57 percent of rural health centers lack reliable electricity, and 83 percent of facilities without solar cite high up-front cost as the principal barrier to adoption.
- **Health facility electrification presents the strongest case for support among unserved segments.** Health facilities deliver life-saving services directly undermined by unreliable supply. In addition, 98 percent of surveyed-facilities would endorse a solar installation, and 87 to 89 percent of hospitals and rural health centers express moderate to high interest in service-based delivery models.
- **The recommended delivery model for solarizing community facilities shifts from up-front capital subsidies toward an energy service delivery model.** It combines donor and private sector roles to deliver reliable services rather than one-off equipment, with concessional support used to close affordability gaps for vulnerable users. The financing structure pairs milestone-based capital expenditure (CAPEX) subsidies with tariff-backed performance guarantees, and energy service company (ESCO) revenue is protected through a dedicated guarantee mechanism. Given the challenges of direct engagement, implementation can be routed through international partners already present.

Myanmar's distributed solar market is at an inflection point. For a growing share of Myanmar's households, businesses, and community institutions, solar is no longer an alternative but the primary viable energy solution to tackle acute electricity shortage. The quality of electricity services has been declining since 2021, although grid expansion has connected more households. In 2017, 77.9 percent of grid-connected households were in the highest service tiers (4 and 5). By 2025, this share had fallen to just 5.7 percent (World Bank 2025a). Diesel prices rose by nearly 900 percent from January 2021 to April 2026, and industrial grid tariffs increased by a further 80 percent in February 2026. The demand for off-grid distributed solar systems has been rising from every segment.

This report assesses Myanmar's rooftop off-grid solar market across three demand segments: C&I, off-grid retail, and community institutions. The report also examines the demand- and supply-side conditions, business models, and financing mechanisms shaping their development. While the assessment spans all three segments, its analytical core and recommended intervention focus on the electrification of rural health facilities, where unmet need and welfare returns are highest. The C&I and off-grid retail analyses establish the market context for that recommendation. It draws on key informant interviews (KIIs), a structured survey of 215 health facilities supported under the Health Assistance and Nutrition Support (HANS) project, and a comprehensive review of secondary data and prior World Bank and Energy Sector Management Assistance Program (ESMAP) analytical work.

The market today. The C&I segment is approaching commercial viability. The levelized cost of energy (LCOE) from a 500 kWp solar-plus-battery system is now estimated at US$0.205 per kWh, which is below the industrial grid tariff of US$0.250 per kWh. Smaller 100 kWp systems at US$0.362 per kWh remain competitive against peak diesel generation. System payback periods have shortened to one to three years, and approximately 110 to 170 new C&I projects per year are now being delivered. Higher-income households are similarly active, installing

systems primarily for reliability rather than cost savings. These segments are likely to continue growing largely on commercial terms, but unmet need is not concentrated within them.

Two segments remain largely outside the reach of the prevailing market structure. The first is lower-income households, where macroeconomic stress, the contraction of formal microfinance, and quality concerns have constrained effective demand. The second is community institutions, particularly health facilities serving vulnerable communities in conflict-affected and remote areas.

The binding constraint on these segments is not the absence of demand. Surveyed health facilities show near-universal awareness of solar technology at 97 percent, and 98 percent of facilities without solar would endorse an installation. The constraint is the absence of viable business models with financing options. Liquidity exists in Myanmar's financial system but is not deployed into solar. Commercial banks require collateral worth 100 to 200 percent of loan value, lack technical frameworks to assess solar-specific risk, and offer loan tenors that are too short for the life cycle of solar assets. The decline in international development finance since 2021 has removed the de-risking mechanisms that previously unlocked capital, and domestic instruments have not replaced them. As a result, risk concentrates on engineering, procurement, and construction (EPC) contractors, distributors, and end users who cannot absorb it. The market is dominated by short-tenor, cash-based delivery rather than the service-based structures that would enable scale.

Prioritizing health facility electrification. Among the segments unserved by the current market, health facilities present the strongest case for support. The telephone survey of 215 health facilities documents the scale of the gap. Only 44 percent of hospitals, 25 percent of rural health centers, and 79 percent of private clinics have grid connections. Where grid supply exists, 55 percent of facilities receive fewer than 10 hours of electricity per day. Approximately 57 percent of rural health centers lack reliable electricity altogether. Hospitals incur monthly diesel costs averaging MMK 3.1 million (US$721, at an indicative rate of MMK 4,300 per US$), reaching MMK 20 million (US$4,651) per month at the upper range. Of the facilities that have installed solar systems, the majority report that those systems do not meet operational needs, primarily due to inadequate sizing and the near-total absence of formal maintenance arrangements.

The welfare cost of these gaps is direct and measurable. Without reliable electricity, vaccines spoil, deliveries are conducted by candlelight, and equipment such as oxygen concentrators and sterilizers cannot function. The cost of inaction is measured not only in foregone development outcomes but also in preventable morbidity and mortality. The heaviest burden falls on women, children, and populations in fragile and conflict-affected areas. Health facilities also report strong willingness to engage in service-based arrangements. About 89 percent of hospitals and 87 percent of rural health centers express moderate to high interest in Energy-as-a-Service (EaaS) or pay-as-you-go (PAYGo) models. Ability to pay is closely tied to donor dependence. About 60 percent of rural health centers have 76 to 100 percent of their operating costs covered by donors. This means that any sustainable service-based arrangement will require donor or project financing as the principal payer for tariffs.

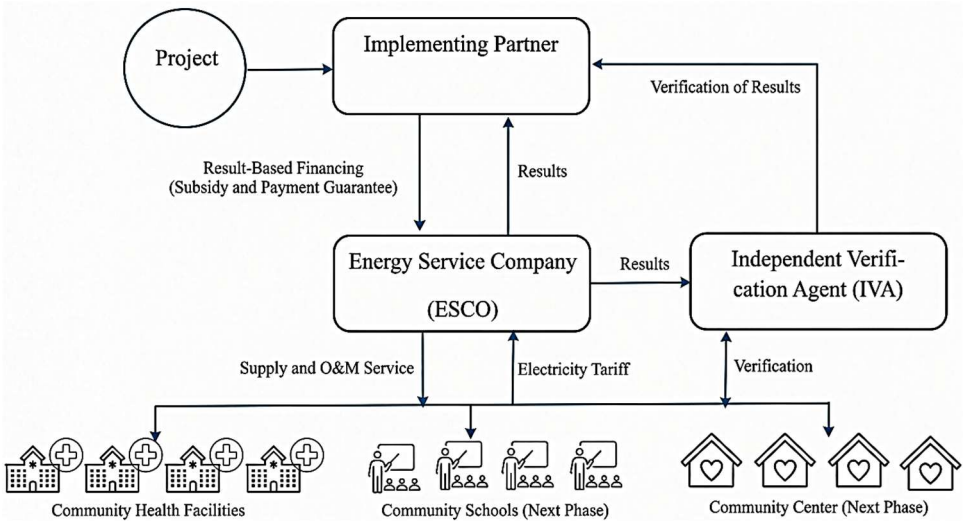
Structural constraints facing the sector. Beyond financing, four structural constraints shape what is feasible. First, technical capacity for system design, installation, and ongoing maintenance is limited and unevenly distributed, particularly in conflict-affected areas where the most acute need is concentrated. Second, institutional capacity to absorb and budget for ongoing operating expenses is weak. Given the prevailing operational context, donors generally favor one-off capital expenditure (CAPEX) grants over multiyear service contracts. Third, quality assurance is not yet established at scale. Myanmar adopted International Electrotechnical Commission (IEC)-aligned national standards in September 2025, but the country has no accredited testing facilities, warranty validation is unreliable, and informal supply channels continue to introduce low-quality products into the market. Fourth, foreign exchange (FX) volatility, import licensing constraints, and connectivity limitations directly affect both the cost of equipment and the viability of digital monitoring systems that underpin performance-based contracts.

The international community is increasingly prioritizing humanitarian assistance in Myanmar, where the need for such support is more critical than ever. Together, these constraints explain why electrification efforts in Myanmar have produced systems that work for 12 to 18 months and then degrade, with no funded pathway for repair, replacement, or performance accountability. Closing this gap requires a financing architecture that pays for sustained service delivery rather than hardware alone.

Recommended approach for community facilities. The report recommends applying ESMAP's Public-Private Partnership for People's Prosperity (5P) model to community facilities, including rural health facility network in Myanmar. The 5P model combines results-based financing (RBF) with a service delivery architecture in which private operators are paid for verified electricity service rather than installed equipment. The mechanism under the 5P model would need to be adapted to the Myanmar context. A suitable donor-funded entity—such as a United Nations (UN) agency or a qualified international third-party organization currently operating in Myanmar—should be selected as the implementing partner and serve as the program's contracting authority. The implementing partner would procure and contract ESCOs in its areas of operation, drawing on its established geographic footprint and networks of health institutions. Second, the model incorporates a dedicated guarantee mechanism that backstops ESCO revenues in the event of tariff nonpayment by health facilities. This addresses the elevated counterparty risk in the Myanmar operating environment.

Under the recommended approach, financing flows through two streams. A milestone-based CAPEX subsidy is disbursed by the implementing partner on verified completion of installation. Ongoing tariff revenues are collected by an ESCO from facilities during the service period, with payment performance backstopped by the guarantee mechanism. Contracts embed standardized performance indicators including available energy, system uptime, and depth of battery discharge, with payment tied to verified performance via remote monitoring. Field staff of implementing partners supplement remote monitoring where necessary for facilities in persistent connectivity dead zones. The proposed implementation modality, including the roles of the implementing partner, ESCOs, and the independent verification agent (IVA), is summarized in Figure ES.1.

Figure ES.1. The Proposed Approach for Community Facilities



The recommended approach is not universally applicable across Myanmar's rural health network. It is viable only for the subset of facilities where minimum thresholds of load, throughput, and institutional presence make multiyear service contracts technically and commercially feasible. These typically include station hospitals, larger rural health centers, and sub-rural health centers serving sufficiently large catchment populations. The smallest and most remote facilities will continue to require alternative approaches, including direct procurement of stand-alone solar systems and appliance-specific solutions.

The economic case for off-grid solar in Myanmar is no longer in question. The remaining task is to direct development finance toward the segments where unmet need is most concentrated and welfare returns on intervention are highest. The C&I segment will continue to grow on commercial terms, and higher-income households will continue to self-finance for reliability. Rural health facilities serving vulnerable populations, where the absence of reliable electricity translates directly into preventable harm, will remain unserved without deliberate intervention. The proposed performance-based subsidy mechanism aligns incentives for private sector investment, innovation, and reliable service delivery, while enabling implementing partners to direct scarce donor resources toward least-cost electrification and sustainable long-term energy access rather than short-term up-front investments.

1 Introduction

1.1. Objective and Scope

This report assesses Myanmar's rooftop off-grid solar market across three demand segments: commercial and industrial (C&I), off-grid retail, and community institutions. It also examines the supply-side conditions, business models, and financing mechanisms shaping their development. The report is intended to inform the wider stakeholder base engaged with or considering engagement in Myanmar's distributed solar sector, including development partners, donors, implementing agencies, private sector actors, and financial institutions.

The mini-grids segment was assessed separately through a survey of 93 mini-grids, with key findings reported in a prior publication 'Energy Poverty Amid Plenty' (World Bank 2024b), thus it is not included in the scope of this report. Within community institutions, the analysis is anchored in the rural health facility network, drawing on a structured survey of 215 health facilities supported under the Health Assistance and Nutrition Support (HANS) project to inform a recommendation on how development actors could support sustainable electrification through existing operational platforms. The methodology underpinning this assessment, including primary data sources, interview approach, and data limitations, is set out in Annex.

1.2. Macroeconomic and Political Economy

Myanmar has experienced severe macroeconomic disruptions against a backdrop of political instability and a deteriorating security situation. Ongoing conflict, power supply constraints, labor shortages, and migration flows continue to weigh on domestic production and private investment. Consequently, economic recovery remains subdued. Real gross domestic product (GDP) is projected to remain approximately 11 percent below its pre-pandemic level in FY2025/26[1] (World Bank 2026). The March 2025 earthquake—which caused an estimated US$11 billion in damage—has added a further acute shock, while ongoing armed conflict remains the single most frequently cited operational constraint across all sectors. Fighting has escalated in Kachin, Sagaing, Magway, Kayah, and southern Myanmar, displacing approximately 3.6 million people by November 2025 (OCHA 2025). Conflict disrupts cross-border trade routes to China and Thailand, raises logistics costs through checkpoint inspections and informal tolls, and limits the geographic reach of suppliers and contractors—all of which bear directly on the rooftop solar sector (World Bank 2025b).

Myanmar's sustained inclusion on the list of Financial Action Task Force (FATF)[2] as a high-risk jurisdiction raises the cost of cross-border financial transactions and restricts correspondent banking access (FATF 2026). Sanctions on some telecom operators also created real constraints for the solar market, particularly for pay-as-you-go (PAYGo) and Energy-as-a-Service (EaaS) business models, which rely on telecom services for remote monitoring and online payment systems. Such sanctions limit the set of international actors and equipment suppliers willing to engage in Myanmar, complicate dollar-denominated payments for solar component imports, deter foreign

[1] Myanmar's fiscal year runs from April to March. FY2025/26 therefore refers to the period from April 2025 to March 2026. All fiscal year references in this section follow this convention.

[2] The FATF is an intergovernmental body that sets international standards for combating money laundering and terrorist financing. Countries designated as high-risk jurisdictions subject to a call for action—Myanmar's current status as of June 2026—trigger mandatory enhanced due diligence requirements for banks and financial institutions transacting with entities in those countries, raising the cost and complexity of cross-border financial flows and limiting access to correspondent banking relationships.

investors and development finance institutions from reengaging, and create reputational and compliance risk for international partners considering investment or partnership in the country.

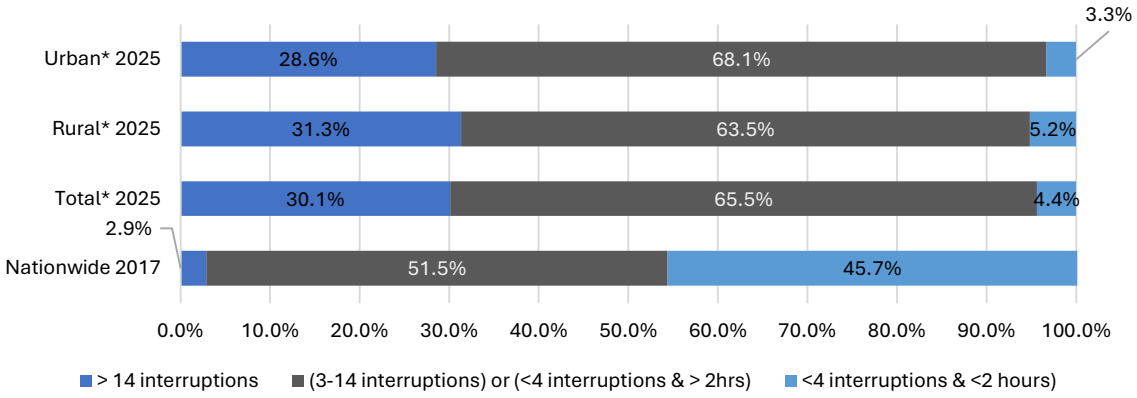
These pressures compound currency misalignment. The official Central Bank of Myanmar reference rate of MMK 2,100 per US$ remains roughly half compared to the parallel market rate, creating structural foreign exchange (FX) risks across the solar value chain, where equipment is priced in US dollars (US$) but revenues are earned in kyat (MMK). Access to foreign currency through formal channels is tightly controlled and slow, with approval requiring multiple regulatory steps across authorized dealer banks, the Ministry of Commerce, and the Foreign Exchange Supervisory Committee (World Bank 2025b).[3]

1.3. State of Energy Access and Service Quality

Myanmar made significant progress in expanding electricity access over the past decade. Grid connectivity nearly doubled from 38.5 percent in 2017 to 72.6 percent in 2025. Rural grid access more than doubled from 22 to 57.7 percent and the share of households with no electricity fell from 13.5 to 4 percent nationwide (World Bank 2025a).

Expanded connectivity, however, has not translated into reliable electricity service, which depends on capacity, daily availability, reliability, voltage quality, and affordability (according to the Multi-Tier Framework for Energy Access). Since 2021, service levels have deteriorated sharply. The suspension of liquefied natural gas (LNG)-based generation, declining domestic gas production, hydropower stress, infrastructure damage, and stalled investment have substantially reduced operational generation capacity. Available generation capacity averaged only 3,034 MW against installed capacity of 6,880 MW in 2025 (World Bank 2025a). The result is a system where supply cannot meet demand. By 2025, 41.6 percent of grid-connected households were in Tiers 1 and 2 and 9.1 percent received no service (Tier 0). Rural households are disproportionately affected, with 31.3 percent facing more than 14 interruptions per week (World Bank 2025a). Nominal electrification rates therefore significantly overstate the reliability of energy services actually experienced by households, businesses, and public institutions.

Figure 1: Distribution of Grid-Connected Households Based on Reliability (urban/rural/total)



Source: Myanmar: World Bank 2025a
Note: The survey covers accessible areas only (Urban = 82% of urban; Rural = 65% of rural; Total = 70% of Nationwide)

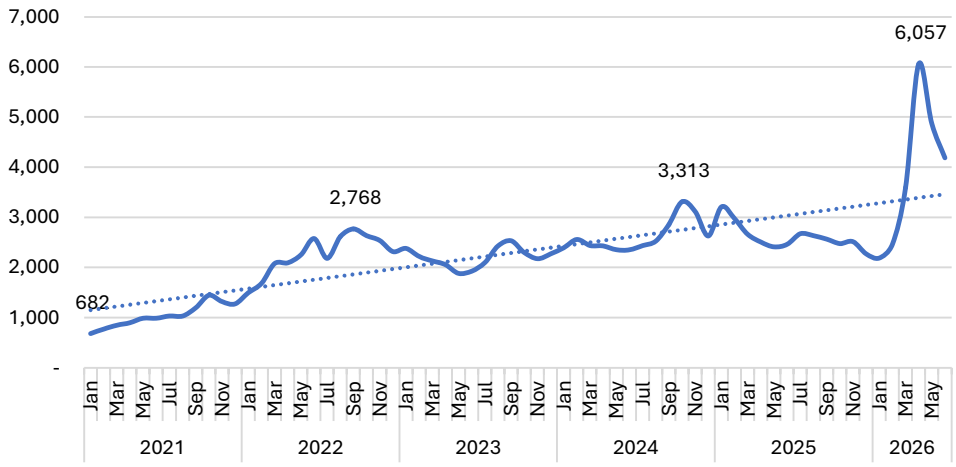
Off-grid solar fills a critical gap in this context, serving 26.5 percent of households nationally and 36.9 percent in rural areas. Solar home systems (SHS) are the most effective off-grid technologies: 72.8 percent of SHS users reach Tier 2 and 17.6 percent reach Tier 3—a marked improvement from 2017 when only 20.1 percent reached Tier 2. In rural areas, 12.6 percent of households rely on solar energy kits (SEKs), compared to 0.7 percent in urban settings, underscoring the essential role of off-grid solar where grid supply is absent or unreliable (World Bank 2025a).

Furthermore, industrial grid tariffs increased from roughly MMK 500 to MMK 900 per unit in February 2026 (MOEE 2026). Average monthly diesel prices—the primary backup energy source for businesses, hospitals, and

[3] US dollar figures in this report use the parallel market rate of approximately MMK 4,300 per US$, which more closely reflects the rate at which solar equipment is procured, and transactions are settled in practice. Where calculations rely on the official rate, this is indicated alongside the figure.

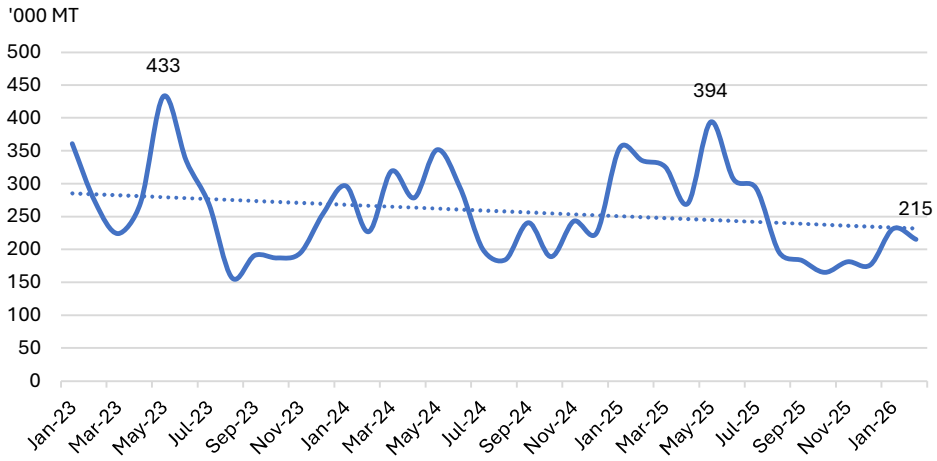
other institutions—have increased by nearly 900 percent in nominal terms, from MMK 682 per liter in January 2021 to MMK 6,057 per liter in April 2026, fundamentally altering the economics of energy provision and strengthening the case for solar across all segments.

Figure 2: Average Monthly Diesel Prices
(Jan. 2021 – Jun. 2026)



Source: World Bank Staffs Estimate

Figure 3: Monthly Diesel Imports Via Yangon Ports (metric tons, thousands)
(Jan 2023–Feb 2026)



Source: World Bank Staffs Estimate

Box 1: Ninefold Price Increase and Steady Decline of Diesel Imports

The monthly average diesel price increased ninefold, from MMK 682 per liter in January 2021 to MMK 6,057 per liter in April 2026, before easing to MMK 4,190 per liter in June 2026. This increase highlights the impact of dual challenges: currency devaluation and rising fuel costs from increased demand and limited supply. Supply constraints are driven primarily by foreign currency restrictions that complicate import financing, kyat depreciation that increases the local-currency cost of dollar-denominated fuel, and broader logistics disruptions—all of which have reduced supply reliability relative to demand. Monthly diesel imports via Yangon Port steadily declined from its peak of 433,000 metric tons per month in May 2023 to 394,000 metric tons in May 2025 and to 215,000 metric tons in February 2026 (Figure 3). One factory reported diesel consumption of about 2,000 liters per day and monthly diesel costs of MMK 164,200,000 (US$38,200).

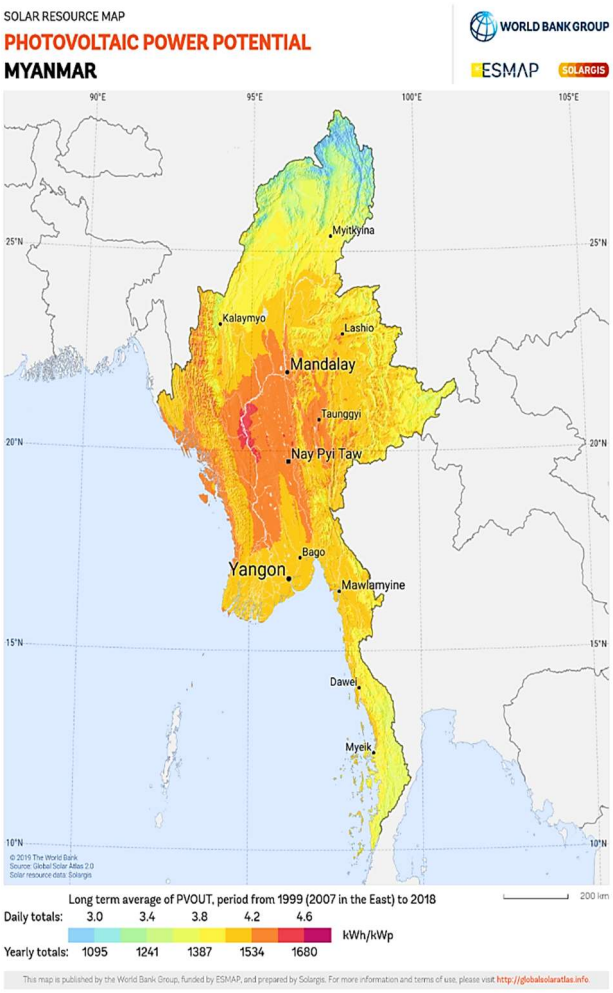
1.4. Geographic Distribution of Solar Potential

Myanmar's solar resource is strong and well distributed, reinforcing the case for solar as a primary energy solution in a context where grid supply is unreliable and diesel is increasingly costly. The central dry zone offers the country's highest irradiance, with photovoltaic power output (PVOUT) approaching 2,000 kWh/kWp per year, and most other regions remain within a favorable range (Figure 4; World Bank Group et al. 2019).

- **Central dry zone**: The central dry zone (Mandalay, Magway, Southern Sagaing, and Bago Regions) have the highest solar irradiance, with PVOUT approaching 2,000 kWh/kWp per year. Combined with limited grid reliability, this supports strong adoption across C&I and residential segments, making the dry zone the most favorable area for solar nationally.
- **Tanintharyi and Mon States**: These states have an annual PVOUT of approximately 1,500–1,650 kWh/kWp. This is paired with active C&I demand from aquaculture and rubber processing, and relatively higher household incomes that support retail adoption.
- **Coastal and island regions**: These regions (Rakhine, Ayeyarwaddy, and Myeik Archipelago) have an annual PVOUT of 1,500–1,700 kWh/kWp. The combination of limited grid access and high fuel transport costs drives demand, although complex logistics continue to constrain the reach of supply to more remote communities.
- **Hydropower-supplied areas**: Northern highland areas (Shan and Kachin States) receive a lower annual PVOUT of approximately 1,200–1,500 kWh/kWp, which reduces the relative resource advantage of solar. Nevertheless, solar remains a critical, complementary energy source, particularly during dry season reservoir shortfalls.

While solar resource quality remains favorable across most of the country, market expansion is severely hindered by significant operational risks, including the threat of equipment seizure, movement restrictions, checkpoints, and prohibitions on battery transport. In addition, solar suppliers' presence is concentrated in major commercial cities of Yangon and Mandalay and their reach is constrained by logistics, transport infrastructure, and security conditions in rural and conflict-affected areas. Consequently, the populations with the most acute energy needs remain the least served by the commercial market.

Figure 4: Solar Resource Map of Myanmar



Source: World Bank Group, funded by ESMAP, and prepared by Solargis (Global Solar Atlas 2.0, 2019)
Note: This figure represents the long-term average of PVOUT, measured in kWh/kWp, derived from satellite-based modeling over 1999–2018 (2007–2018 for eastern regions).

2 Demand-Side Market Segmentation, Sizing and Challenges

Demand for solar energy in Myanmar is highly heterogeneous, reflecting differences in energy needs, ability to pay, and access to financing across segments. While all segments face unreliable grid electricity supply and have strong incentives to adopt alternative solar solutions, their capacity to translate demand into adoption varies significantly.

Myanmar's rooftop solar market is organized around three structurally distinct demand segments: the C&I segment, which represents the largest share of installed capacity; the off-grid retail segment, comprising households, small and medium enterprises (SMEs), and microenterprises served by smaller stand-alone systems; and public institutions, including health facilities, schools, and community facilities.

The three segments differ significantly in terms of system size, installation requirements, customer profile, financing structure, and delivery model fit. Solar systems for the C&I segment require professional design and installation by engineering, procurement, and construction (EPC) contractors. Off-grid retail products are designed for use without professional installation, such as plug-and-play products. Public institutions occupy a distinct position driven by service continuity needs and donor-dependent financing. Nonetheless, due to a lack of formal data, market sizing across all segments is indicative. The estimates provided here are intended for directional planning and investment prioritization and should be interpreted in conjunction with the methodological notes and data quality flags detailed in Annex.

Demand for solar in Myanmar is fundamentally driven by customers' needs for a reliable energy supply and consistent pricing. Business survey findings show that firms without solar cite frequent power cuts, limited grid supply hours, and voltage fluctuations as major operational constraints (World Bank 2025c).

Moreover, declining global solar technology costs have strengthened this value proposition, particularly in the C&I segment, where investments are often justified through diesel substitution and improved operational stability, with payback periods of about two to three years under current conditions. These factors create a strong economic incentive for adoption, especially among energy-intensive businesses. The potential to convert this demand into actual adoption varies considerably across segments.

2.1. Commercial and Industrial (C&I) Segment

The C&I segment serves as the primary driver of market growth. Its core customer group comprises businesses with significant and mostly predictable energy demand profiles, concentrated in manufacturing, commercial centers, and agri-processing. They have stronger incentives and greater capacity to invest in solar than other segments. Businesses typically have stronger balance sheets and some ability to self-finance or access limited forms of credit, making this the most commercially accessible segment in the current market environment.

The primary motivation for solar adoption in this segment is reliability and cost reduction. Most C&I customers are already connected to the grid. Rather than serving as a primary energy source, solar functions as a reliability

enhancement, reducing exposure to outages and volatile diesel costs. The economic case has been strengthened by two converging cost pressures. C&I system capital costs in Myanmar fell from approximately US$800 per kW in January 2024 to US$500 per kW in March 2026, while diesel prices increased by almost 900 percent since 2021 and industrial grid tariffs rose from MMK 500 to MMK 900 per unit in February 2026 (MOEE 2026). Together, these dynamics redefine solar, positioning it not only as a cost-saving technology but also as a strategic tool for risk mitigation and energy security.

Four system configurations are common in the C&I segment, each reflecting a different balance between cost, reliability, and grid connectivity (see Table 1).

Table 1: Most Common Solar Configurations of C&I Segment in Myanmar

System Type	Description	Typical use-case	Pros	Cons
Solar-Grid Hybrid	A combination of roof-mounted solar and grid electricity	Typically urban in grid-connected areas with tolerance for power outages.	Provides alternative high-current power when solar is low	Limited resilience to power outages when solar is low
Solar-Diesel Hybrid	A combination of roof-mounted solar and diesel generator	Typically rural in non-grid-connected areas.	Provides alternative, high-current power when solar is low. Allows for 24-hour electricity.	Generator maintenance; fuel cost, storage, and availability; emissions; noise.
Solar-Grid-Diesel Hybrid	A combination of roof-mounted solar, grid electricity, and diesel generator	Grid-connected areas with need for 24/7 power availability.	Combines all benefits of the above configurations. The most flexible option.	More expensive than the above configurations.
System with Batteries	Battery storage incorporated into any of the above systems	Businesses without diesel generator and need for power when solar is low.	Allows excess solar to be stored and used any time. Provides the highest level of energy reliability.	Prohibitively expensive in many larger-scale use cases.

2.1.1. C&I Market Size and Challenges

Based on interviews with nationally active EPC contractors, the estimated annual C&I solar market above 10 kWp is approximately 110 to 170 projects per year across all EPCs. This represents an installed capacity of 6 to 22 MWp per year. However, the market is dominated by small C&I systems in the 10 to 50 kWp range, estimated at 100 to 150 projects per year. They are driven by workshops, cold storage, gas stations, and retail outlets. Medium to large installations above 50 kWp account for 10 to 20 projects per year. Rice mills, garment factories, and agri-processing plants have been identified as primary drivers from 2025 to 2026. Large-scale industrial projects above 1 MWp remain rare, at one to two per year.

The conversion rate from qualified lead to signed contract is estimated at 25–35 percent. For every project stalled, two to three firms engaged in an EPC underwent a site survey and ultimately did not proceed. This underscores financing constraints and capital limitations as the primary bottleneck.

Demand for solar among C&I customers is constrained by the broader business environment. Myanmar's commercial sector operates under severe and compounding stress. Average firm sales fell 14 percent and profits fell 20 percent in 2025, with only 7 percent of firms reporting profit increases (World Bank 2025b). In this context, capital investment decisions, including solar, are being deferred in favor of liquidity preservation and operational survival. Capacity utilization across manufacturing and services remains well below potential, and machinery imports have not recovered to pre-pandemic levels, indicating that solar investment is competing against a

generalized reluctance to commit capital in an uncertain environment (World Bank 2025c). For businesses operating on thin or negative margins, even an economically rational investment with a clear payback period may be difficult to justify when revenues are unpredictable and the business horizon is short.

Risk perception compounds this further. The combination of political instability, conflict, and asset insecurity—including uncertainty over property rights, site tenure, and the physical security of installed equipment—raises the perceived risk of committing to a fixed infrastructure investment. Qualitative interviews demonstrate that negative experiences with low-quality solar products, particularly in segments where informal supply channels are prevalent, have eroded trust in solar more broadly. Together, these factors mean that even where the economic case for solar is clear—and power outages costing an estimated 15 percent of monthly sales make it so for many firms—the decision to invest is filtered through a risk calculus that frequently results in inaction (World Bank 2025c).

2.2. Off-Grid Retail Segment: Households, SMEs, and Microenterprises

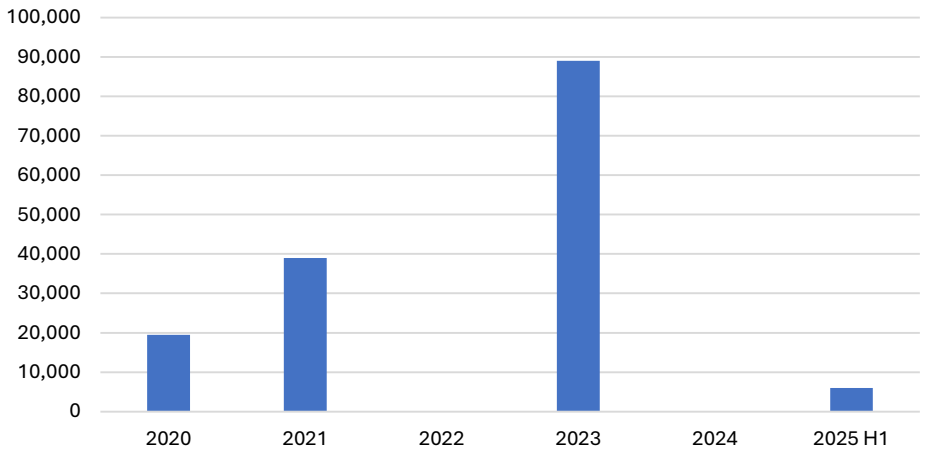
Off-grid retail products are stand-alone photovoltaic (PV) systems designed to provide electricity to households, small businesses, and microenterprises not connected to the central grid. Unlike C&I systems, they do not require professional EPC installation; in fact, they are usually plug and play. Following the Global Off-Grid Lighting Association (GOGLA)[4] definitions, this segment is divided into two product families—solar lanterns and SHS—distinguished by system capacity and the level of electricity access they provide. These two segments make up the overarching SEKs category. While electricity needs are typically centered on basic services such as lighting, phone charging, cooling, and other household appliances, there is also demand for solar-powered equipment for small-scale economic activities (SPM 2018–2024). However, adoption remains limited by availability, affordability constraints, lack of access to consumer financing, and variability in product quality.

GOGLA collects global off-grid solar market data[5] from affiliate companies through an online survey every six months. The data for Myanmar show 176,337 SEKs were sold between 2020 and June 2025 (2025 H1). Affiliate companies include GOGLA members, companies selling products that meet VeraSol quality standards, and appliance companies that participated in the Global LEAP Awards or engage with the Low Energy Inclusive Appliances (LEIA) program. Most local importers and distributors do not meet these criteria, which limits the coverage of available data. Furthermore, GOGLA publishes anonymized data, requiring three data points for each geography. Figure 5 demonstrates that fewer than three affiliate companies were present in Myanmar in 2022 and 2024 (ESMAP, GOGLA, and Dalberg 2024). Non-affiliate sales are estimated to make up 80 percent of off-grid solar volumes globally. The 2021 and 2023 volume peaks—38,786 and 89,100 units respectively—likely reflect large one-off lantern shipments rather than sustained positive market trends (GOGLA 2025).

[4] GOGLA is the global association for the off-grid solar energy industry, representing over 200 members working to transform lives through clean, affordable, and high-quality solar products and services.

[5] GOGLA's sales and impact data are the bedrock of information on the off-grid solar and energy-efficient appliances sector. It is used to track the stand-alone off-grid solar industry's contribution to energy access by the Sustainable Development Goal 7 custodians and feeds into key research and reports on energy access. GOGLA, the World Bank's Energy Sector Management Assistance Program (ESMAP), and the Efficiency for Access Coalition publish the yearly Global Off-Grid Solar Market Report, a market intelligence series on sales and impact of off-grid solar lighting products and appliances, sold by GOGLA affiliates.

Figure 5: SEK Sales in Myanmar (2020 – Jun. 2025)



***Source**:* GOGLA

The GOGLA data demonstrate that quality-verified off-grid solar products are not readily available in Myanmar. The numerous market barriers discourage leading off-grid solar players from entering and servicing the market. This leaves partnerships with local importers and distributors, or aid organizations, as the only means of penetrating the market. Local importers and distributors in turn are less likely to purchase quality-verified products due to the significant cost differential and the low purchasing power of the population. In all successful off-grid solar markets, the availability of products has been the principal driver of uptake due to high latent demand for modern electricity services.

Households and micro, small, and medium enterprises (MSMEs) represent a large share of overall electricity demand but remain constrained by the limited availability of products, and their ability to purchase or finance off-grid retail products. In fact, both affordability and end-user financing remain a binding constraint, particularly for lower-income households.

The decline in development funding since 2021, combined with the contraction of formal microfinance, has sharply reduced the consumer financing options available to households and small enterprises (World Bank 2025b). Formal microfinance institutions (MFIs)—previously a meaningful channel for small-scale solar financing in rural areas—have retreated significantly. Most consequentially, Pact Global Microfinance Fund (PGMF), one of Myanmar's largest MFIs with nearly 1 million borrowers at its peak, ceased operations in June 2023 due to regulatory constraints. Household and MSMEs now rely primarily on informal borrowing arrangements—family loans and community savings groups—or forego financing entirely. PAYGo installment models offered by off-grid solar distributors provide a partial but incomplete solution to bridge financial gaps of households and MSMEs for solar adoption.

Consumer awareness in the retail segment is high; however, trust in product quality is a growing constraint. The proliferation of low-cost, low-quality imports has led to inconsistent system performance and, in some cases, outright failure, eroding consumer confidence in solar more broadly.

All the above barriers to market growth are exacerbated by conflict and internal displacement. Households and businesses that have been displaced, had assets seized, or operate in areas of active conflict cannot invest in fixed solar infrastructure regardless of affordability or awareness. Displacement also disrupts the social trust networks and community structures that support informal financing arrangements.

2.2.1. Solar Lanterns (below 3 Wp)

Solar lanterns are the dominant product category in Myanmar's GOGLA-reported data, accounting for 69 percent of all SEKs sales between 2020 and June 2025—comprising the 0–1.5 Wp sub-tier at 3 percent of total sales (~5,290 units) and the 1.5 to 3 Wp sub-tier at 66 percent (~116,382 units). However, this dominance should not be read as

evidence of sustained organic demand: Some volume peaks are driven by large one-off lantern shipments rather than underlying household market growth. A significant proportion of reported sales is labeled PAYGo-enabled, though it is unclear whether this reflects in-country deployment or product specifications at the point of shipment.

2.2.2. Smaller SHS (3–49.9 Wp)

Smaller SHS represent 18 percent of GOGLA-reported SEKs sales over the same period. Products in this category are typically sold through distributor networks and purchased outright with cash, reflecting the limited availability of consumer financing for this segment. Where PAYGo installment models are available, repayment periods are typically 12 to 18 months with financing costs embedded in the system's price. Default rates of 30 to 40 percent have been reported, constraining the ability to scale these models without additional risk mitigation support (SPM 2024–2026).

2.2.3. Larger SHS (50 Wp and above)

Larger SHS account for 13 percent of GOGLA-reported SEKs sales. Beyond the household segment, larger SHS also serve small businesses, private clinics, and schools where load requirements exceed what smaller systems can provide. No market sizing or installed base data are available beyond GOGLA-reported sales figures. This is flagged as a data limitation in Annex.

2.2.4. Estimated Annual Off-grid Retail Market Size

GOGLA-reported data provide the most systematic available baseline for SEK market sizing in Myanmar but should be treated as a floor rather than a comprehensive estimate. On the basis of GOGLA-reported figures, the annual average SEKs market across the 2020–2025 H1 period is approximately 32,000 units per year—comprising roughly 22,000 solar lanterns (below 3 Wp), 5,800 smaller SHS (3 to 49.9 Wp), and 4,200 larger SHS (50 Wp and above). Given the structural underreporting documented above—declining manufacturer participation, missing data for 2022 and 2024, and significant informal and gray-market import channels—these figures represent a conservative lower bound on actual market activity.

To estimate a more realistic market size, two adjustment factors are applied to the GOGLA baseline, reflecting different assumptions about the degree of undercount. A lower-bound adjustment factor of 2.5—based on primary data collected through key informant interviews (KIIs)with distributors and PAYGo operators between January and February 2026, whose reported sales volumes consistently exceeded GOGLA's reported averages—produces an estimated annual market size of approximately 80,000 units per year. An upper-bound adjustment factor of 5—equivalent to assuming GOGLA captures approximately 20 percent of actual sales—is consistent with GOGLA's own global methodology, which acknowledges that reporting coverage in markets with significant informal and gray-market activity is typically in the range of 20–40 percent of actual market volume. Applied to the GOGLA annual average, this factor produces an estimated annual SEK market size of approximately 160,000 units per year. The resulting range of 80,000–160,000 units per year represents the working estimate used in this report.

Translated into approximate market value using indicative retail prices by product category, the upper bound of this annual SEK market represents approximately US$13 million per year at retail, a relatively modest absolute market size reflecting the dominance of low-value solar lanterns in the product mix but has significant growth potential as the market transitions toward higher-value SHS products. This range is corroborated directionally by the 2025 Multi-Tier Framework (MTF) Follow-Up Survey, which found that 11.3 percent of households nationally use SHS and 8.9 percent rely on solar lighting systems (World Bank 2025a). Applied to an estimated national household base of 12 million and adjusted for the survey's 70 percent geographic coverage, this implies an SHS installed base of approximately 1.9 million households—a figure that substantially exceeds GOGLA's entire cumulative sales record for 2020–2025, reinforcing the fact that GOGLA captures only a fraction of actual market activity. The category-level split within the range—across solar lanterns, smaller SHS, and larger SHS—should be treated as indicative because it follows GOGLA proportions as an approximation; the degree of undercount likely varies by product category, with informal channels particularly significant for solar lanterns. All figures should be treated as indicative, given the data limitations described in Annex.

2.3. Public and Community Institutions

Public and community institutions—including health facilities, schools, and community facilities—constitute a distinct demand segment within Myanmar's off-grid and distributed solar market. Their primary motivation is service continuity, while their ability to pay is largely determined by donor and nongovernmental organization (NGO) funding structures (SPM 2026b). Private clinics, which operate on a fee-for-service basis, report the highest ability to pay for improved reliability, while rural and community health clinics, whose operating budgets are predominantly donor funded, report the lowest. This is a structural financing constraint that maps onto facility funding models, and shapes which delivery models are commercially viable for each facility type (SPM 2026b). Although there is no comprehensive national registry of non-state health facilities, as of 2023, an estimated 7,000–8,000 health facilities were operated by non-state actors in Myanmar, including more than 6,300 licensed private hospitals and clinics, as well as facilities run by ethnic health organizations (EHOs), NGOs, community society organizations (CSOs), and faith-based organizations. According to the Central Statistical Organization, there were 45,867 public schools, 1,283 private schools, 1,388 monastic schools (comprising primary, secondary, and high schools) in the country (Central Statistical Organization 2024).

Among public and community institutions, health facilities have the most pressing need for reliable and sustainable electricity, given that basic health care services are essential for conflict-affected communities. An assessment of reliable and affordable electricity access was conducted across 215 health facilities across HANS project areas to guide electrification efforts. A summary of the key findings is provided below.

2.3.1. Energy access and current sources

Energy access across health facilities is fragmented and dominated by costly, unreliable supply. Among surveyed facilities, only 44 percent of hospitals, 25 percent of rural health centers, and 79 percent of private clinics are connected to the national grid. Where grid supply exists, it is rarely sufficient. About 55 percent of grid-connected facilities receive between 0 and 10 hours of electricity per day, and 73 percent face outages at least every other day. Rural health centers in active conflict-affected states are the most severely constrained. In Chin State, one-third of rural health centers have no access to any electricity source, and in Kachin a further one-fifth rely on battery-powered lights or have no access at all.

To bridge these gaps, facilities operate multiple energy sources in parallel. Diesel generators are the dominant backup for hospitals, with 78 percent maintaining generators as either a primary or backup supply and 69 percent relying primarily on diesel generation. Approximately 46 percent of hospitals, 55 percent of private clinics, and 36 percent of rural health centers have installed rooftop solar systems, most within the past one to three years. The survey indicates that hospitals incur a monthly average of MMK 3.1 million (US$721) on diesel costs, with the upper range reaching MMK 20 million (US$4,651) per month. Diesel costs have risen sharply since 2021 and have been further compounded by global fuel market volatility following the February 2026 Middle East conflict, which has reduced both fuel availability and affordability across Myanmar's conflict-affected regions.

2.3.2. Existing solar deployments

Most facilities with solar systems report that the systems do not generate enough electricity to fully support essential service delivery and nearly half show operational issues linked to inadequate sizing, maintenance gaps, and component degradation (see Box 2). System functionality declines markedly with age, and systems installed more than three years ago show substantially higher rates of poor performance than those installed within the past year.

Maintenance arrangements are predominantly informal and reactive. Most facilities rely on on-call repairs rather than structured service contracts, and preventive maintenance remains the exception. Reliance on on-call services is particularly high among hospitals (83 percent), and the absence of structured operation and maintenance (O&M) is reflected in declining system performance over time.

Existing deployments are implemented almost exclusively under the EPC approach, in which the facility or its supporting donor covers the full up-front cost of procurement and installation and retains responsibility for O&M. United Nations (UN) agencies are currently implementing solar deployments through EPC approaches and have confirmed willingness and technical capability to implement a results-based financing (RBF)-based approach for

long-term operability and sustainability. With the exception of a small number of facilities connected to village mini-grids, none of the surveyed facilities receive solar electricity through a service-based delivery model.

2.3.3. Willingness and ability to pay

Willingness to pay for reliable electricity is consistently high across facility types, but the ability to pay varies substantially. Approximately 36 percent of hospitals and 53 percent of rural health centers report difficulty meeting their current monthly electricity costs. Private clinics, which operate primarily on a fee-for-service basis, show the strongest combination of willingness and capacity, with 73 percent willing to pay more for improved reliability. Rural health centers are the least commercially viable subsegment, with 60 percent reporting that donors cover 76 to 100 percent of their operational costs and only 17 percent receiving any patient fees.

This funding structure is central to understanding the rural community health segment's ability to pay. Most surveyed facilities are already incurring regular monthly expenditure on electricity through diesel purchases and grid bills, and these costs are largely covered by development partners and humanitarian funding rather than by the facilities' own resources. Health facilities are willing and able to continue paying at comparable levels in exchange for a more reliable supply, provided that the underlying donor financing for operating costs remains in place. The implication for delivery model design is significant. Any service-based arrangement for public health facilities must be structured with donor or project financing as the principal payer for tariffs, rather than relying on facility-generated revenue.

Box 2: Deep Dive - Energy Access in Health Facilities

Health facility demand for electricity varies substantially by facility type, both in current access conditions and in the commercial viability of service-based delivery. Approximately 57 percent of rural health centers lack reliable electricity, and installed solar systems frequently underperform across all facility types. The table below summarizes survey findings across the three fixed facility types.

	Hospitals	Rural health centers	Private clinics
Grid connection	44	25	79
Diesel generator	78	11	15
Solar installed	46	36	55
Interest in EaaS or PAYGo	89	87	75
Difficulty meeting current costs	36	53	4

Solar penetration is uneven, and existing systems underperform across all facility types. Although 46 percent of hospitals and 55 percent of private clinics have installed solar systems, the majority report that these systems do not meet operational needs. Underperformance correlates with the absence of formal maintenance arrangements and inadequate initial sizing.

Ability to pay is closely tied to donor dependence. Private clinics operate on fee-for-service revenue. Hospitals carry strong demand but are constrained by NGO-supported operating budgets. For rural health centers, donors cover 76 to 100 percent of operational costs in 60 percent of cases, and only 17 percent of facilities receive patient fees

Demand for service-based delivery is consistently high across all facility types, with 75 to 89 percent reporting moderate to high interest in EaaS or PAYGo arrangements. Reliability, not cost saving, is the primary motivation cited by 62 percent of respondents, while 83 percent of facilities without solar cite high up-front cost as the principal barrier to adoption

3 Supply-Side Structure, Market Dynamics and Barriers

Myanmar's off-grid and distributed solar market has expanded significantly since 2021, driven by structural energy shortages, declining global technology costs, and the displacement of diesel as the default backup energy source. A diverse ecosystem of EPCs, distributors, importers, and a nascent local manufacturing base now operates across the country. The supply side, however, faces significant structural constraints across financing, imports, quality assurance, logistics, and human resources. These constraints directly shape which delivery models are feasible, which customer segments can be served, and at what cost.

3.1. Market Structure and Key Actors

Most suppliers entered the market between 2018 and 2023, often transitioning from generator or IT-related businesses. The market has evolved from an earlier mini-grid focus toward a diversified ecosystem of EPCs and distributors, many of which now combine installation services with product distribution.

The four main actor types are described in the following subsections.

3.1.1. EPC companies

Many current EPC companies entered the market during the scale-up of mini-grid deployment under the government-led National Electrification Project (NEP), supported by the World Bank from 1995 to 2020. Recognizing the opportunity, a subset of companies expanded their technical capabilities, often transitioning from adjacent sectors such as diesel generator supply, electrical and IT services, and light manufacturing. This phase catalyzed the development of local technical expertise and project delivery experience, particularly in rural electrification.

More established EPCs have begun to take on elements of the independent power producer or even energy service company (ESCO) role. Given prevailing uncertainties, however, most EPCs have become highly risk-averse, favoring up-front or short-tenor payment structures and avoiding longer-term contractual exposure. More complex delivery models such as power purchase agreement (PPA) structures are typically only applied to established, creditworthy commercial clients and remain few in number.

Even under up-front or short-tenor payment structures, EPCs are often required to secure working capital to deliver projects, including those supported by grants, because customers are frequently unwilling or unable to provide up-front payments for equipment. Mechanisms to mobilize local working capital exist but are not sufficient to meet demand.

EPCs have therefore taken on an expanded financing role. They act as facilitators by connecting clients to banks or blended financing opportunities, and some report offering short-term installment arrangements of about 12 months with low implicit interest rates following an initial down payment. These arrangements allow clients to proceed without accessing formal bank loans for which they may not qualify under conservative lending criteria. As a result, EPCs absorb a significant share of project and repayment risk (SPM 2024–2026).

Moreover, the International Renewable Energy Certificates for Electricity (I-REC(E)), launched in Myanmar in early 2026, add a further incentive for EPCs by offering new revenue streams for renewable energy producers (I-Track Foundation 2026). Even so, EPCs still heavily depend on customers with up-front capital, which most customers cannot access.

3.1.2. Distributors and PAYGo operators

A small number of distributors operate established retail networks with PAYGo capability and some have VeraSol-certified product portfolios.[6] In the last five years, 13 companies reported sales to GOGLA for the semiannual Global Off-Grid Solar Market Reports. Of these, five distributors distributed VeraSol-certified products. These actors have demonstrated the ability to manage large agent networks, process mobile money payments, and serve customers across multiple regions including some peri-urban and rural areas. Their current expansion is constrained by PAYGo default risk, import logistics, and the absence of working capital support. They represent natural partners for retail market development programs and humanitarian procurement channels seeking quality-assured products at scale. Humanitarian organizations, including the International Committee of the Red Cross (ICRC), have already begun sourcing from these actors on a wholesale basis for distribution in conflict-affected areas.

3.1.3. Importers and equipment suppliers

The import and equipment supply market has matured despite the continued prevalence of low-quality products in informal channels. Reputable Chinese brands are now available locally for MMK-denominated purchasing, reducing FX exposure for buyers. Multiple importers are actively managing supply despite licensing and logistics constraints, and bulk procurement by programs, such as Securing Energy Needs and Transition in RUral areas of Myanmar (SENTRUM, implemented by the INGO GRET), has demonstrated that centralized purchasing can achieve competitive pricing and reduce individual operator and distributor risk.

In parallel, informal market participants, including small traders and parallel import channels, play a significant role in expanding access to solar lanterns, particularly in underserved areas. These actors increase product availability through imports from Thailand and China, but they also introduce variability in quality, reduce the enforceability of warranties, and weaken standardization across the market (SPM 2024–2026).

3.1.4. Local manufacturers

Attempts to establish local manufacturing in Yangon have been hampered by the sharp price decline of solar products from Chinese imports. Local manufacturing therefore represents a longer-term opportunity rather than a current market solution. It is of strategic interest for programs focused on local market development, quality infrastructure, and supply chain resilience. With targeted technical and financial support, and a clear pathway to VeraSol certification, local manufacturers could in time become quality anchors for the domestic market and participate in development-funded programs. Lessons learned from World Bank's programs supporting local manufacturers through certification workshops under the NEP are relevant in this context.

3.2. Barriers throughout the Value Chain

Myanmar's solar value chain is import dependent and weakly integrated, with constraints at each stage influencing overall market performance.

Import and foreign exchange. Most system components and SEKs are imported from China. The import stage is shaped by overlapping regulatory and currency constraints that extend procurement cycles and increase system costs. Since April 2022, the Central Bank of Myanmar regulations have required firms to convert foreign currency at the official rate and seek approval for outbound transfers, restricting hard currency access and making profit repatriation difficult for foreign investors (Central Bank of Myanmar 2022). The gap between the official rate of MMK 2,100 per US dollar and the parallel market rate, which reached approximately MMK 4,275 by May 2026, creates structural uncertainty in project cost estimation and procurement financing (World Bank

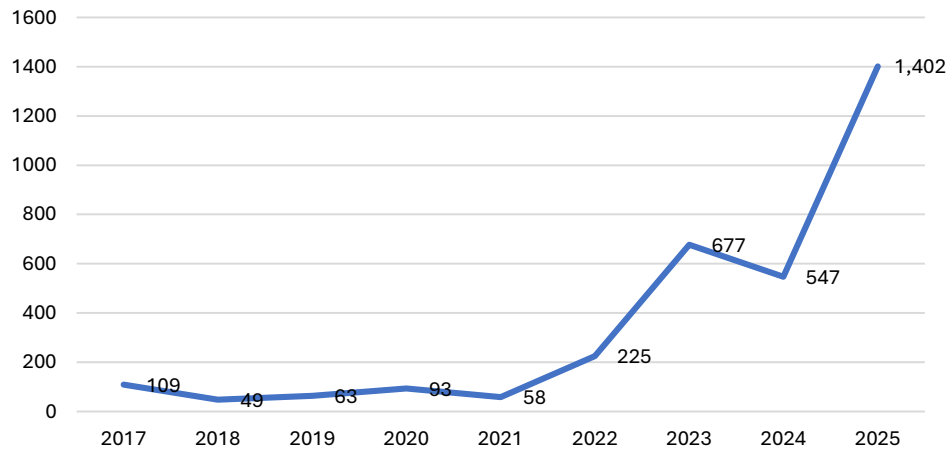
[6] VeraSol, an evolution of Lighting Global Quality Assurance, builds upon the strong foundation laid by the World Bank Group and merges it with comparable product data for off-grid appliances and productive-use equipment currently housed under Equip Data. VeraSol is managed by Collaborative Labeling and Appliance Standards Program (CLASP) in collaboration with the Schatz Energy Research Center at Humboldt State University.

2026). Because most EPCs and distributors operate domestically and earn no foreign currency, they cannot procure directly and must rely on FX-holding intermediaries, adding cost and time to every transaction.

Through 2025, import licenses were issued on each transaction. A new rule effective January 2026 (Announcement No. 4/2025) consolidates this to one application per month per goods category, though applicants must still demonstrate access to foreign currency, effectively tying import capacity to export-linked FX availability (Ministry of Commerce Myanmar 2025). Physical shipping may take two to three weeks, but the full procurement cycle typically stretches to four to six months (SPM 2024–2026). Even short delays have led to noticeable cost increases between order and delivery, and suppliers holding inventory face downside price risk as equipment prices can fall after procurement.

Tax treatment adds further uncertainty. While the Union Tax Law 2023 exempts key solar components (modules, inverters, charge controllers, and batteries), exemptions are applied inconsistently in practice. This is particularly the case for bundled products such as SEKs, where duties of 25–30 percent have been reported on accessories, wiring, and monitoring equipment not covered by the exemption (Government of Myanmar 2023).

Figure 6: Myanmar PV Panel and Cell Imports (MW) from China (2017 – 2025)



***Source**:* Ember (2025)
***Note**:* Ember is a think tank established in 2008 whose data and analysis are cited by organizations such as the IEA.

Distribution, procurement and logistics. The distribution stage is characterized by fragmented networks concentrated in urban centers. Transport challenges and security conditions constrain the movement of goods to rural and conflict-affected areas, limiting geographic reach. Solar equipment, particularly batteries, is sometimes treated as sensitive due to potential dual-use concerns, resulting in increased scrutiny, informal restrictions, and inconsistent documentation requirements at checkpoints. Poor transport infrastructure further compounds access challenges, with many rural areas becoming difficult to reach during the rainy season. As a result, many distributors maintain low stock levels, defer expansion into higher-risk geographies, and build risk premiums into pricing.

System design and installation. System design often reflects trade-offs between cost, performance, and practicality, with a tendency to prioritize affordability and immediate functionality over longer-term optimization and sustainability of access. Technical talent scarcity has emerged as one of the most acute constraints. The pool of qualified engineers has contracted sharply due to emigration and conflict, with the number of qualified applicants per technical role falling from about ten previously to two or three today (SPM 2024–2026). This limits both technical depth and execution capacity, reducing the number of projects EPC companies can undertake simultaneously. The shortage of skilled technicians affects not only solar installation but also the long-term O&M of solar systems.

Contractors for rural and remote installations are predominantly based in Yangon or Mandalay and subcontract local technicians for field work. Local technical capacity is uneven and, in some areas, severely limited, creating a structural gap between where solar demand is strongest and where installation capability exists.

Operations and maintenance. The O&M stage is a critical weakness in the value chain. Formal service agreements are limited and short term, typically covering one to two years. Otherwise, maintenance is reactive rather than preventive, with responsibility for upkeep often passed to the consumer or community (SPM 2024–2026). Evidence from a 2026 health facility survey reinforces this finding. While 91 percent of the facilities surveyed report access to technicians for basic maintenance, structured preventive maintenance remains uncommon, contributing directly to high rates of system performance issues after the first year of operation.

Connectivity constraints compound the problem. Unreliable internet access limits remote monitoring and fault detection, particularly in conflict-affected areas. This reduces providers' ability to maintain consistent service delivery and constrains the viability of performance-linked financing models, such as EaaS and PAYGo, that depend on continuous verification.

Financing. Since 2021, limited international development financing has sharply reduced the availability of de-risking mechanisms such as partial credit guarantees, FX risk mitigation facilities, and blended finance structures. Private liquidity remains present but is not effectively deployed into solar investments, as available instruments are mismatched with the sector's risk profile. Four channels shape the current financing environment: commercial banks, MFIs, mobile money infrastructure, and development finance.

Commercial banks. Commercial banks are the primary source of formal financing but operate under highly conservative, collateral-driven frameworks. No dedicated solar lending financial products exist. Solar projects are assessed against the same criteria as any other business loan, with interest rates of 13–15 percent, tenors of two to five years, and collateral requirements of 100 to 200 percent of loan value. These conditions exclude a large share of viable borrowers regardless of project economics. Loan approval timelines of up to three months further constrain EPCs and businesses operating in fast-moving market conditions.

Banks also lack technical frameworks for assessing solar-specific risk. Credit decisions are therefore made on collateral and relationships rather than on the underlying viability of solar investment. This suggests that financing constraints reflect conservative lending frameworks in which solar is not yet recognized as a bankable asset class, rather than realized credit risk. EPCs rely on internal funds, supplier credit, and client installment payments, limiting their ability to scale project pipelines.

Microfinance institutions. MFIs play a limited and declining role. Their availability has contracted significantly across several regions since 2021, and where they remain active, loan sizes are small and interest rates are relatively high. This makes them more relevant for entry-level systems and solar appliances than for larger installations.

The gap left by MFI retrenchment is significant. For small enterprises and productive-use customers that cannot access commercial bank financing and lack sufficient cash to self-finance, there is currently no adequate formal financing channel. The scale of this gap is illustrated by GRET's SENTRUM program, which effectively performs the MFI function itself, assessing beneficiary financial capacity, structuring repayment plans, and layering grants of up to 50 percent of system cost for businesses that cannot cover the remainder (GRET 2024).

Mobile money infrastructure. Mobile money is one of the most significant enabling assets for solar financing. Wave Money Myanmar operates through 61,000 agent-managed locations and reaches an estimated 60–70 percent of households through a nationwide agent network covering approximately 90 percent of the country. Wave Money customers do not need smartphones, as keypad phones are sufficient, allowing unbanked and rural users to transact without a bank account. This creates a strong functional foundation for installment and PAYGo models (FinTech Futures 2024).

Distributors offering products with installment payments nonetheless report persistent nonpayment risks, and connectivity disruptions in conflict-affected areas periodically take payment platforms offline. This is a specific risk for models that depend on continuous digital payment flows for revenue collection and system management.

Development finance. Development finance represents an important but structurally limited source of capital for suppliers navigating Myanmar's constrained financing environment. Development partners still active in the country operate exclusively through non-state actors, channeling resources through adjacent sectors, particularly agrifood and livelihoods, with solar as a component rather than a stand-alone focus.

Several active programs demonstrate this pattern. Grant cofinancing through the European Union (EU)-supported Responsible Business Fund Plus (RBF+), which covers 50–65 percent of project costs for SMEs investing in responsible technologies, including solar, provides a complementary pathway for suppliers whose customers cannot self-finance (Swiss Agency for Development and Cooperation 2024). The EU-funded SENTRUM program similarly supports last-mile distributors and has developed an innovative energy fund to address affordability constraints at the customer level (GRET 2024). UN agencies and ICRC provide a further channel, deploying solar through humanitarian and public institution programming. This creates demand that suppliers can serve but sits outside conventional commercial financing frameworks.

Across these initiatives, the common thread is that development finance is filling gaps that commercial capital cannot yet reach rather than catalyzing a broader shift in how the financial sector treats solar as an asset class.

Quality assurance. Quality assurance is a cross-cutting constraint across the value chain. In September 2025, the Myanmar National Standards Council issued Notification No. 075/2025, formally adopting Myanmar Standards aligned with International Electrotechnical Commission (IEC) standards covering safety, performance, testing, and installation (Myanmar National Standards Council 2025). Practical implementation remains at an early stage. The country has no accredited testing facilities, warranty validation is unreliable, and awareness of and compliance with the new standards remain inconsistent across suppliers, customs officers, and installers (SPM, 2024–2026). Informal supply channels continue to introduce low-cost, lower-quality products into the market, particularly in the SEK segment, eroding consumer trust more broadly.

International quality frameworks, including VeraSol certification, have yet to gain meaningful traction among distributors and are virtually unrecognized among customers. Reputable suppliers compete on quality by offering branded equipment, warranties of two to five years on inverters and batteries and up to 12 years on PV panels, and stronger after-sales service. However, market-wide quality assurance remains limited.

Regulatory and grid integration. Feed-in tariff and grid connection policies present structural barriers to distributed solar growth. The feed-in tariff introduced in 2023, paying MMK 85 per kWh for systems under 1 MW, has not been sufficient to drive uptake: Rapid currency depreciation has pushed production costs above the tariff level, removing real incentive value for C&I installations (Eleven Media Group 2023).

Unified grid codes and interconnection procedures remain underdeveloped, and compliance costs further reduce the economic viability of grid-connected systems. Interest in PPAs is rising, but their use is constrained by regulatory ambiguity around net metering, grid interconnection, and generation licensing. This is compounded by overlapping jurisdiction between the Ministry of Electricity and Energy (MOEE), regional governments, and industrial zone authorities.

3.3. Cost and Affordability of Solar Solutions

The economic case for solar in Myanmar is best understood through the levelized cost of energy (LCOE)—the full lifetime cost of generating 1 kWh of electricity from a given system, expressed in US$ per kWh. In Myanmar, LCOE comparison is more complex than in most markets. Solar must be evaluated against three distinct alternatives: a grid supply that is unreliable and increasingly expensive, diesel generation that is costly and fuel-price-volatile, and the absence of any supply at all. The February 2026 industrial tariff increase made solar economics more compelling for C&I customers than at any previous point.

Table 2 presents indicative LCOEs for the principal system configurations deployed in Myanmar, calculated using primary cost data collected through interviews with EPC contractors and system operators from January to May 2026, and benchmarked against current grid tariffs and diesel generation costs.

Table 2: Indicative LCOE Comparison by System Configuration - Myanmar, 2026

System Configuration	Size	LCOE (USD/kWh)	Basis
Grid — residential (low tier)	—	0.014	MOEP tariff, Sep 2024
Grid — residential (high tier)	—	0.083	MOEP tariff, Sep 2024
Grid — industrial (Economic Rate)	—	0.250	MOEP tariff, Feb 2026
Diesel generation (average price)	—	0.269	Calculated; MMK 2,737/liter
Diesel generation (peak price)	—	0.362	Calculated; MMK 3,755/liter
Solar + BESS — residential	5 kWp + 17.9 kWh	0.298	Typical size for residential customer
Solar + BESS — C&I small	100 kWp + 500 kWh	0.362	Typical size of small C&I system
Solar + BESS — C&I large	500 kWp + 1,000 kWh	0.205	Typical size of large C&I system
Solar + BESS — health institution (state/regional)	30 kWp + 102 kWh	0.372	Large public system
Solar PV only — health institution (township big)	14 kWp + 64 kWh	0.257	Vaccine sub-depot in big township
Solar PV only — health institution (township small)	7 kWp + 32 kWh	0.257	Vaccine sub-depot in small township

Note: BESS = Battery energy storage system. All configurations use standardized assumptions of 4.0 peak sun hours per day and 80 percent performance ratio, reflecting Myanmar's solar resource in the Yangon region and typical system performance under local conditions. LCOE calculations use a 12 percent discount rate across all configurations, reflecting Myanmar's elevated country risk premium. System lifetimes: 5 years (residential, reflecting accelerated inverter degradation under Myanmar grid conditions) and 10 years (C&I and public institutions). O&M rates: 5 percent (residential), 1.75 percent (C&I), 2.25 percent (public institutions). Diesel LCOE calculated from SPM field data (factory reporting MMK 164,200,000 per month for 2,000 liters per day consumption) and standard engineering assumptions (0.33 liters per kWh fuel consumption rate; US$300 per kW genset CAPEX). Grid tariffs reflect MOEE-published rates and do not represent the true cost of electricity supply. See Annex for full methodology.

Three patterns emerge from Table 2 that are relevant to the business model and investment viability analysis that follows.

First, C&I solar economics improve significantly with scale. The LCOE falls from US$0.362 per kWh at 100 kWp to US$0.205 per kWh at 500 kWp, a 43 percent reduction, with only the larger configuration undercutting the industrial grid tariff on pure cost grounds. At a smaller scale, solar + BESS remains cost competitive against peak diesel prices and delivers reliability benefits that the grid cannot provide but does not offer a straightforward cost saving against the grid tariff.

Second, residential solar commands a significant cost premium over the subsidized residential grid tariff, US$0.298 per kWh against US$0.014–0.083 per kWh. This indicates that residential demand is driven by reliability rather than cost savings, and that market interventions should be designed accordingly. EPC interviewees confirmed that residential customers are usually rich households that are not price sensitive and use the systems for backup generation.

Third, public institution economics vary significantly by facility scale and procurement model. Township-level facilities, both small (7 kWp + 32 kWh) and large (14 kWp + 64 kWh) configurations, show an LCOE of US$0.257 per kWh. This sits below average diesel generation costs of US$0.269 per kWh. The economic case at township level therefore rests primarily on diesel substitution and reliability value. State and regional facilities requiring larger separately specified BESS systems (30 kWp + 102 kWh) show an LCOE of US$0.372 per kWh—above both

the industrial grid tariff and average diesel costs. The financial case for these facilities depends almost entirely on the value placed on energy reliability and service continuity rather than on direct cost savings.

Across all public institution configurations, economics are more sensitive to procurement model and system design than to scale alone. The configurations do not offer a straightforward cost advantage over the grid tariff under current conditions.

4 Delivery and Business Models

The types of off-grid solar delivery models employed currently in Myanmar are best understood through the lens of risk allocation. Each model reflects how financial, operational, and market risks are distributed across customers, EPCs, financiers, and investors, according to their risk tolerance and capacity. In the current environment, delivery models have evolved to minimize long-term risk exposure for private sector providers. The result is a market dominated by short-tenor, customer-financed models, while more scalable service-based models remain nascent. This risk allocation, while rational for private actors, systematically excludes populations and institutions least able to bear or finance risk themselves—most notably health facilities serving vulnerable communities and households at the bottom of the pyramid, whose electrification needs cannot be met by the prevailing market structure.

4.1. Direct Purchase

Direct purchase remains the most prevalent model across all segments. The customer assumes full financial and performance risk, and the EPC or distributor is typically paid on delivery without ongoing accountability for system performance. The model is dominant among C&I customers (EPC approach) with sufficient liquidity and for customers of smaller retail systems (cash sale). The economics have improved considerably for C&I buyers as system capital costs have fallen.

The model's core limitation is a structural misalignment of incentives. Because EPCs/distributors compete on installation/up-front cost rather than life cycle performance, system sizing and integration quality are often suboptimal (SPM 2024–2026). Customers typically lack the technical capacity to validate design decisions and absorb the financial consequences of underperformance.

A small group of established operators is starting to differentiate itself by offering optional multiyear O&M contracts that align incentives with long-term system performance rather than one-time installation. The system is still customer financed at the point of purchase, but the addition of service obligations represents a meaningful step toward service-based arrangements. This can be understood as a precursor EaaS, introducing performance accountability without requiring the provider to carry the full financing risk of asset ownership (SPM 2024–2026). This practice remains the exception rather than the norm, but its emergence signals both growing provider sophistication and increasing customer demand for accountability beyond installation.

The direct purchase model is therefore sustainable only for customers with sufficient up-front liquidity. In practice, it applies to wealthier households and businesses with consistent, bankable revenue streams. In Myanmar's current context, this represents a narrow slice of the population. Even among commercially viable C&I customers, cash reserves are frequently constrained. Direct purchase therefore cannot drive meaningful scale on its own. By design, it also excludes the most vulnerable population segments entirely, including low-income households, informal microenterprises, and public institutions with limited capital budgets, which are precisely the groups for whom energy access would have the greatest developmental impact.

Box 3. Customer Risk Exposure Under EPC Approach: When System Performance Falls Short

Solar systems require significant up-front investment and must be properly designed to achieve expected returns. Under prevailing EPC approach models, customers typically bear the full risk of system performance, even when system design is led by EPC contractors.

One industrial facility in Myanmar invested approximately US$270,000 in a 333 kW rooftop solar PV system integrated with diesel generators and the main grid. The system was not appropriately sized, requiring generators to continue operating to meet minimum load thresholds. As a result, fuel savings were not realized and only about one-third of solar generation was utilized, significantly reducing the return on investment.

This example reflects a broader market issue. Under EPC models, EPC contractors are typically not exposed to long-term performance risk after installation. Incentives to optimize system sizing, integration, and actual performance are therefore limited. Customers, who often lack the technical capacity to validate system design, absorb the financial consequences of underperformance. This misalignment can result in improperly sized or poorly integrated systems, weakening financial outcomes and undermining confidence in solar investments.

Source. SPM 2024–2026.

4.2. Installment and PAYGo Models

In the absence of formal consumer financing, EPCs and distributors have become de facto financiers, absorbing short-term credit risk through installment and PAYGo arrangements (SPM 2024–2026). For SEKs, monthly installment plans typically run 15–18 months, with a down payment of about 5 percent of the total cost followed by monthly installments ranging from MMK 20,000 to MMK 75,000. Financing costs are embedded in the system price. PAYGo is enabled by mobile money infrastructure, such as Wave Money.

Despite this infrastructure, the model faces significant constraints. Default rates of 30–40 percent have been reported by some operators, and repossession and resale of products do not fully cover losses. The primary tools for managing default risk are careful customer selection, basic creditworthiness assessment, and accurate sales pitches. Customers who delay payment in the first 60 days are least likely to pay the full product contract value. Furthermore, customer data quality, including accurate contact details and payment history, is critical but difficult to maintain in practice. Global System for Mobile Communications tracking of PAYGo products, once a key portfolio management tool, has been disabled in Myanmar since 2021, removing an important risk management capability (SPM 2024–2026).

4.3. Power Purchase Agreements (PPAs)

PPAs are gaining traction in the C&I segment, though adoption remains limited. Approximately seven commercial PPA projects have been identified to date, five of which involve a single experienced provider. This indicates early market traction alongside a high degree of concentration. Tariffs range from MMK 500 to MMK 1,000 per kWh (approximately US$0.12 to US$0.23 per kWh at the parallel market rate) under contracts of up to 15 years. Since February 2026 industrial tariff increase, PPA tariffs have, for the first time, become competitive with grid electricity for industrial users, while also offering protection against diesel price volatility. PPAs are structurally compelling for C&I customers. They eliminate up-front CAPEX and align EPC and ESCO incentives with system optimization and long-term performance.

However, adoption is currently limited to larger, more stable businesses that can absorb contractual complexity and counterparty risk. Long-term contracts expose providers to customer default, FX volatility, equipment performance risk, and external shocks. Regulatory uncertainty around grid interconnection, net metering, and contract enforceability adds further friction, alongside the absence of standardized PPA agreements and lengthy negotiation timelines. For PPA offerings to grow, it is essential that financing is readily available locally, otherwise even larger EPCs will quickly reach the limit of how many PPAs they can develop. Despite banks' increased appetite to extend financing to PPA projects, such financing is available only for PPAs developed by the larger EPCs and only for projects with blue chip off-takers (for example, larger local companies or multinational companies in Myanmar). Even then, banks will often require some security—typically in the form of a guarantee provided by SPM.

Some developers that operated purely on PPA and EaaS models before 2021 withdrew following the loss of international investment capital. They are now considering a selective return to PPAs using their own capital, a cautious but meaningful signal of returning market confidence.

4.4. Energy-as-a-Service (EaaS)

EaaS extends the PPA concept by shifting payment from kWh consumed to service delivered. The provider retains ownership of the system and is compensated based on performance rather than generation alone. This creates stronger incentives for correct system sizing, integration with existing energy sources, and ongoing maintenance than up-front CAPEX models, directly addressing the misalignment of incentives in the direct purchase models.

EaaS remains nascent in Myanmar. None of the EPC companies interviewed for this report have implemented this model. It is technically suited to the needs of public institutions, particularly health facilities, where reliability requirements are high and load profiles are predictable, but commercial viability is constrained by the operating environment (SPM 2026b) and their ability to pay. The model is less suitable for smaller commercial customers, where system sizes of 5–30 kW generate insufficient revenue to justify the transaction costs and long-term risk exposure. Connectivity is a further structural constraint. Internet disruptions in conflict-affected areas affect remote monitoring, billing, and automated service management, and telecommunications infrastructure remains subject to localized restrictions (SPM 2024–2026).

A binding constraint specific to EaaS under a result-based payment structure is working capital. ESCOs must finance the full up-front installation cost and recover it over the contract period through performance-verified disbursements and tariff revenues. Under ex post verification, this creates a working capital gap that domestic commercial banks are not currently structured to cover. Practical structures to bridge this gap include first-loss guarantees on bank lending to ESCOs, drawing on the model that Smart Power Myanmar (SPM) has operated since 2023; revolving credit facilities anchored on the milestone-based CAPEX subsidy; and partial advance disbursement of CAPEX subsidy against installation completion certificate, with reconciliation against verified performance over the first 12 months. The specific structure adopted should be defined with detailed design alongside the implementing partner and participating banks.

4.5. Donor-Supported Hybrid Models

Donor-supported hybrid models operating in Myanmar remain project based and donor dependent. None has yet reached the systemic scale and financial self-sufficiency needed to function as a sustainable long-term market structure. The challenge for program designers is how to structure them so that they build toward commercial viability in a context where the need is high but the resources are limited. Evidence from active programs shows that targeted risk-sharing instruments can unlock commercial capital at a meaningful scale and grant levels can be reduced as markets mature. Three different instruments can address structurally different market failures and operate at different points in the value chain.

Risk-sharing guarantees for commercial lending. Instruments such as SPM's guarantee program address the financing failure on the EPC side, where commercial banks have liquidity but do not classify solar as a bankable asset class. SPM issued over US$800,000 in guarantees between 2024 and March 2026, facilitating more than US$7 million in solar deployments across 24 EPCs, with no guarantee calls to date (SPM 2026a). Tenors are short (three months to three years), and the instrument targets working capital and project finance rather than end-user affordability. Development partners working in the agri-SME segment anticipate that the market is approaching the point where bank credit line facilitation will become the appropriate instrument, replacing grants as the primary support mechanism. This trajectory represents the most credible pathway toward commercial-scale solar financing in Myanmar (SPM 2026a).

Matching grants for productive-use and SME investment. RBF+ addresses end-user affordability for SMEs investing in productive-use technologies including solar. Grants have been reduced as the market has matured, with the next program phase expected to shift to bank credit line facilitation—a deliberate and evidence-based transition toward commercial terms.

Centralized procurement with embedded consumer finance. SENTRUM's model, implemented by the international NGO (INGO) GRET, combines centralized bulk procurement, local installation contractors, and microfinance partners with grants averaging 40 percent of system cost (GRET 2024). The model addresses two failures simultaneously: small-distributor scale economies in procurement and household affordability. It is closer in structure to a result-based program for off-grid retail than to a guarantee or matching-grant facility.

For Myanmar's more constrained segments, including public institutions, community facilities, and lower-income households, hybrid models that combine elements of commercial and concessional financing currently offer the most effective pathway for solar deployment. The specific instrument should be matched to the specific market failure being addressed rather than treated as interchangeable variants of a single category.

5 Moving Toward a Sustainable Solution

Myanmar's rooftop solar sector has made real progress, but current private sector business models remain structurally limited in their reach. The C&I market segment is expected to keep growing, driven by grid unreliability and rising electricity tariffs.

MSMEs and a small subset of community institutions rely on donor support that is short term and project bound rather than market building. Households and the majority of community institutions remain largely unserved. Among the latter unserved segments, community health institutions are the most compelling to address. Health facilities deliver life-saving services. Without a stable power supply, vaccines spoil, deliveries are conducted by candlelight, and equipment such as oxygen concentrators and sterilizers cannot operate. The cost of inaction is measured not only in foregone development outcomes but also in preventable morbidity and mortality.

Community institutions cannot be served through commercial models driving the C&I segment as they lack the necessary up-front capital. At the same time, the prevailing donor approach of one-off CAPEX grants for system installation has repeatedly produced the same failure. Systems work for 12–18 months and then degrade, with no funded pathway for repair, replacement, or performance accountability. Closing this gap requires a financing architecture that pays for sustained service delivery rather than hardware alone.

This points to a hybrid donor concessional model combining RBF with an EaaS delivery structure along the lines of ESMAP's Public-Private Partnership for People's Prosperity (5P) framework. Under an RBF, payments are linked to verified energy service outcomes rather than equipment delivery. Under this configuration, private operators deliver and maintain electricity services to community facilities over multiyear terms, donor concessional funds underwrite the affordability gap through performance-linked payments, and asset ownership and accountability sit with a clearly designated institutional counterpart. This shifts the risk profile away from one-off installations and toward a market structure in which the private sector has a sustained commercial incentive to keep systems operational.

This model is not universally applicable across Myanmar's rural community facilities network. It is viable only for the subset of facilities where minimum thresholds of load, throughput, and institutional presence make multiyear service contracts technically and commercially feasible. These are community schools, hospitals, district and township-level health facilities, agri-processing facilities, and larger rural community centers. Private facilities are commercially viable on their own and would access solar through commercial channels. The smallest and most remote facilities, including small rural community health clinics and schools, are likely to fall below the viability threshold for a service-based model and will continue to require alternative approaches.

Table 3. Suitable Business Models

Business Model	Segment	LCOE (USD/kWh)	Viability Status	Primary Constraint	Recommended Intervention
Direct Purchase	C&I	0.205–0.362	Viable	EPC working capital	Working capital facility
Donor-supported Hybrid	C&I	0.205–0.362	Viable	Scale of Guarantee facility	Risk-sharing guarantee expansion
Installments and PAYGo Models	Households	—	Viable with RBF	Security, scale, lower-income HH	Market development support
PPAs	C&I	0.205–0.362	Viable with moderate support	FX risk, regulatory uncertainty	Blended finance, FX risk instruments
EaaS	Large community facilities	0.372	Viable with RBF	Payment commitment risk	Partial subsidy or Guarantee
EaaS (5P-adapted)	Small community facilities		Viable with concessional support	Counterparty payment risk; connectivity; absence of sovereign payer	RBF + 5P model with capex subsidy and ESCO tariff guarantee

5.1. The 5P Model Adapted to Myanmar

The recommended approach applies ESMAP's Public-Private Partnership for People's Prosperity (5P) model, combining RBF with a service delivery architecture in which private operators are paid for verified electricity services rather than installed equipment. Two adaptations are needed.

First, implementation routes through the UN agencies or qualified third-party entities already serving as the implementing partners for the existing operations in the country. Each implementing partner would procure and contract ESCOs in its area of operation, drawing on its established project's geographic footprint and established network of community institutions.

Second, the model incorporates a dedicated guarantee mechanism that backstops ESCO revenues in the event of tariff nonpayment by community facilities and conflict-induced damages. This addresses the elevated risks in the Myanmar operating environment.

Implementation architecture. UN agencies or qualified third-party entities would serve as implementing partners, dividing responsibilities by geography in line with their existing implementation arrangements. Selected ESCOs deliver electricity services to a bundled portfolio of rural community facilities within their area of operation and collect tariff payments directly from the facilities they serve.

Financing flows in two streams. A milestone-based CAPEX subsidy is disbursed by the implementing partner on verified completion of installation. Ongoing tariff revenues are collected by ESCO from facilities during the service period, with payment performance backstopped by the guarantee mechanism described below. Contracts would embed the ESMAP key performance indicator (KPI) framework (available energy, system uptime, depth of discharge) with payment tied to verified performance via remote monitoring. The donor provides financing, technical assistance, and the guarantee instruments to implementing partners (either UN agencies or qualified

third-party entities). Energy sector specialized agencies such as ESMAP provide the methodological backbone and access to the 5P toolkit (KPI definitions, bid templates, energy service agreement language, financial models).

A guarantee mechanism for ESCO payment risk. ESCOs collect tariff payments directly from beneficiary community facilities. This payment structure preserves the service-payment discipline central to the 5P model and creates the predictable revenue stream that ESCOs require to invest in long-term service contracts.

In Myanmar, however, the ability of rural community facilities to consistently pay tariffs is not assured. Facilities operate on constrained and irregular budgets channeled through humanitarian and donor mechanisms rather than regular budget allocations. The source of funds with which a facility would pay an electricity tariff is not currently established in any standardized way, and conflict-affected operating-environment disruptions can interrupt the flow of resources to facilities for extended periods.

To address this counterparty risk, the recommended program would establish a dedicated guarantee facility covering ESCO revenues in the event of facility tariff nonpayment, alongside related risks including worsening security, currency transfer disruptions, and early contract termination due to operating-environment shifts.

Standard donor-funded operations, except humanitarian supports, are not currently available for new commitments in Myanmar. The recommended interim structure draws on the model that SPM has operated since 2023, in which a guarantee pool is established with donor funds and intermediated through partnerships with local commercial banks. The implementing partner allocates a portion of program proceeds to establish a guarantee fund and engages a local bank to administer the fund. Guarantee claims are processed when predefined and documented trigger conditions are met. Once bilateral and multilateral organizations are able to reengage in Myanmar, the program would transition to standard guarantee instruments, designed in coordination with both institutions on instrument selection and risk-sharing structure.

Adapting the RBF component to the Myanmar market. The RBF mechanism embedded in the 5P model would require adaptation to the Myanmar context. Several elements warrant attention: the balance between an up-front CAPEX subsidy to reduce electricity tariffs for rural community facilities and performance-linked disbursement; the design of the KPIs and standard ESMAP indicators that may require modification to reflect Myanmar facility load profiles and seasonal solar resource variability; the verification cadence and the role of implementing partner's field staff in supplementing remote monitoring data; the treatment of force majeure and operating-environment disruptions in the payment formula; the currency exchange rate risk; and the mechanism for resolving disputes over KPI achievement in the absence of a domestic regulatory authority. A review of the past World Bank-funded NEP found that off-grid solar operators and IVAs procured under the NEP are still active in the market and willing to engage.

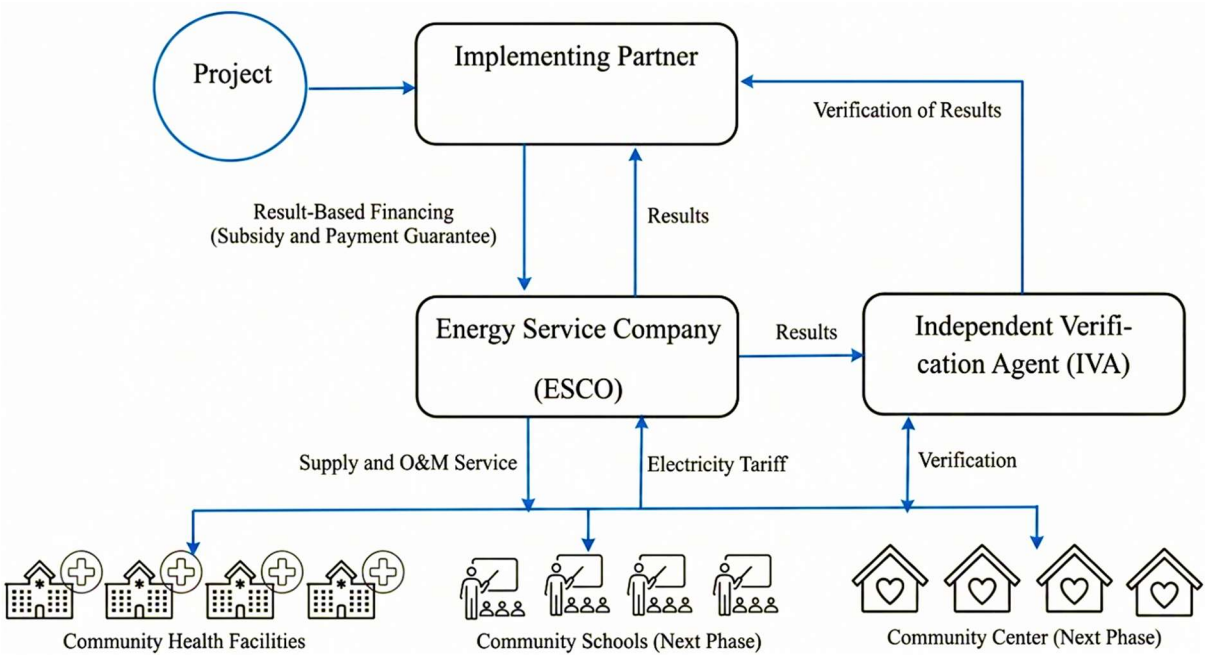
Connectivity as a binding design constraint. The 5P model's reliance on remote monitoring to verify KPIs and trigger payments presupposes reliable data connectivity from each facility, which does not hold across much of rural Myanmar. Mobile network coverage is uneven, telecommunications infrastructure has been degraded since 2021, and connectivity is actively restricted in some areas. A Myanmar 5P-adapted program must therefore design connectivity into the system architecture rather than assuming it. This includes mandatory offline data caching at a facility level or manual verification through an implementing partner's field staff for facilities in persistent connectivity dead zones.

The proposed model would operate through the following sequence:

1. A suitable donor-funded entity—in the Myanmar context, UN agencies or third-party entities, drawing on their respective geographic footprints—acts as implementing partner, managing donor funds and serving as the contracting authority for the program.
2. Private sector off-grid solar or EPC companies are appointed as ESCOs through a selection process managed by the implementing partner, with bundled facility portfolios structured to attract qualified bidders and achieve economies of scale.

3. The selected ESCO installs rooftop solar systems at the contracted community facilities, provides O&M over the contract period, supplies electricity services in line with agreed KPIs, and collects electricity tariffs from beneficiary facilities.
4. The ESCO reports results to the implementing partner and the independent verification agent (IVA), including completion of solar system installation, service delivery performance against KPIs, and tariff collection data.
5. The IVA verifies results against pre-agreed performance indicators and reports findings to the implementing partner.
6. Upon verification, the implementing partner disburses a pre-agreed CAPEX subsidy for lowering electricity tariffs to affordable levels for rural health facilities. Where required, the implementing partner activates the guarantee mechanism to cover tariff payment shortfalls and conflict-induced damages, thereby protecting the ESCO's return on investment.
7. The ESCO recovers its investment, together with ongoing O&M costs, through the combination of the CAPEX subsidy and tariff payments collected from beneficiary facilities over the concession period

Figure 7: The Proposed Approach for Community Facilities



5.2. Reaching Segments Outside the 5P Model

The 5P-adapted architecture described above targets the subset of community facilities where load, institutional presence, and multiyear contract viability make service-based delivery feasible. A significant share of the rural community network—the smallest and most remote clinics, schools, community centers—falls below this threshold. Lower-income households face a parallel exclusion from commercial PAYGo models, where affordability and security constraints limit market reach. These segments are not addressable through the same architecture, but they are not beyond reach.

The following complementary approaches can extend coverage to these groups.

Humanitarian procurement aggregation. For the smallest community facilities, the most viable near-term pathway is aggregated procurement through the UN agencies or third-party entities already operating in conflict-affected and remote areas. Rather than one-off donations of varied equipment, aggregated procurement against a defined product specification—sized to facility load profiles and validated against minimum service standards—can reduce unit costs, enforce quality, and create a more predictable pipeline for suppliers. This does not resolve the O&M gap, but bundling procurement with service or warranty obligations and building basic maintenance

capacity among facility staff and community workers can extend system lifetimes meaningfully. Implementing partners are well positioned to coordinate this function across their existing geographic footprints.

RBF for VeraSol-certified SEKs via distributors. Lower-income households and small community facilities can be reached through RBF tied to the distribution of certified SEKs meeting VeraSol quality standards. Under this approach, RBF payments are disbursed to distributors upon verified sales of qualifying products to target beneficiaries, reducing effective consumer prices without distorting the market. Verification can draw on distributor sales data, PAYGo activation records, and periodic spot-checks by a qualified IVA. This model leverages existing distribution networks while directing subsidies to the affordability gap. Targeting can be refined using geospatial poverty and electrification data to focus payments on underserved areas and lower-income quintiles.

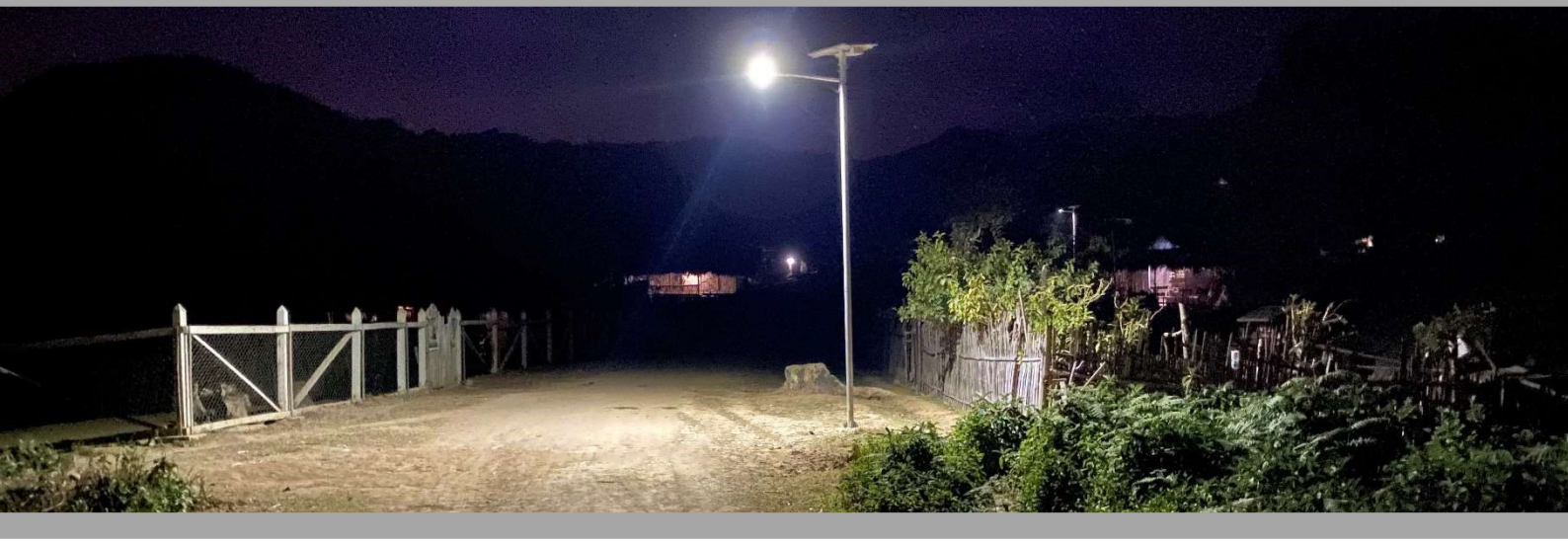
6 Conclusion

The economic case for off-grid solar in Myanmar is not in question. Prolonged grid unreliability, rising tariffs, the high and volatile cost of diesel, conflict, and the persistent absence of grid extension to remote areas have together made rooftop solar the most cost-effective electrification option for a growing share of the country's energy demand. The question is how to direct development finance toward the segments and institutions where it will deliver the greatest welfare impact.

The current market is concentrating private investment in commercially viable C&I segments, where firms are installing solar to avoid grid unreliability and rising tariffs, and in higher-income households that can pay up-front cost and installment terms. These segments are expected to continue growing on commercial terms, though their trajectory remains conditional on the broader operating environment. The segment where the welfare cost of inaction is highest—rural community institutions serving vulnerable populations, where the absence of reliable electricity translates directly into preventable morbidity, mortality, literacy and food security—remains almost entirely unserved by the market and will remain so without deliberate intervention. This is the case for directing donor support toward community facility electrification.

The recommended approach applies ESMAP's 5P model, adapted for Myanmar's operating environment. Implementation routes through UN agencies or third-party entities in their existing operation networks, with ESCOs procured to install, operate, and maintain solar systems at community facilities. Financing flows in two streams: a milestone-based CAPEX subsidy disbursed against verified installation and ongoing tariff payments collected by ESCOs from facilities, with a dedicated guarantee mechanism backstopping ESCO revenues in the event of tariff nonpayment and conflict-induced damages. Performance is verified by an IVA through remote monitoring, which should be designed to function under Myanmar's internet connectivity constraints.

In sum, performance-based subsidy mechanisms align incentives for private actors to invest, innovate, and deliver reliable services, while enabling implementing partners to direct limited donor resources toward least-cost electrification and sustainable energy access rather than short-term, up-front investments.



References

Central Bank of Myanmar. 2022. "Foreign Exchange Management Directives (April 2022)." Nay Pyi Taw.

Central Statistical Organization. 2024. 2024 Myanmar Statistical Yearbook.

Eleven Media Group. 2023. "Electricity Excess from Solar Panels Installed by the Public Will Be Purchased at 85 Kyats Per kWh." https://elevenmyanmar.com/news/electricity-excess-from-solar-panels-installed-by-the-public-will-be-purchased-at-85-kyats-per. Accessed May 12, 2026.

Ember. 2025. "China Solar Exports Data." https://ember-energy.org/data/china-solar-exports-data/. Accessed May 12, 2026.

ESMAP, GOGLA, and Dalberg. 2024. Off-Grid Solar Market Trends Report 2024. Washington, DC: World Bank Group.

FATF (Financial Action Task Force). 2026. "High-Risk Jurisdictions Subject to a Call for Action (June 2026)." FATF, Paris. https://www.fatf-gafi.org. Accessed June 8, 2026.

FinTech Futures. 2024. "Myanmar's Wave Money Taps Amdocs for Digital Financial Services Platform." https://www.fintechfutures.com/digital-wealth-management/myanmar-s-wave-money-taps-amdocs-for-digital-financial-services-platform. Accessed May 12, 2026.

GOGLA. 2025. Global Off-Grid Solar Market Report Semi-Annual Sales and Impact Data, Myanmar Country Dataset 2020–2025 H1. Utrecht: GOGLA.

Government of Myanmar. 2023. "Union Tax Law 2023." Nay Pyi Taw.

GRET. 2024. "SENTRUM Programme Documentation: Securing Energy Needs and Transition in Rural Areas of Myanmar."

I-Track Foundation. 2026. "Introduction of I-REC(E) in Myanmar."

Ministry of Commerce Myanmar. 2025. "Announcement No. 4/2025 on Import Licensing Procedures." Nay Pyi Taw.

MOEE (Ministry of Electricity and Energy). 2026. Announcement on the Revision of Electricity Tariff Rates dated February 27, 2026. Nay Pyi Taw.

Myanmar National Standards Council. 2025. "Notification No. 075/2025: Adoption of Myanmar Standards (MMS)." Nay Pyi Taw.

OCHA (United Nations Office for the Coordination of Humanitarian Affairs). 2025. Myanmar Humanitarian Needs and Response Plan 2026. Yangon: OCHA Myanmar.

SPM (Smart Power Myanmar). 2018–2024. "Internal Household and PUE Survey Results." Yangon.

SPM. 2024–2026. "Program Data, Industry Consultations, and Guarantee Facility Results." Yangon.

SPM. 2026a. "Commercial and Industrial (C&I) Solar Program Data Dashboard (as of March 2026)." Internal dataset. Yangon.

SPM. 2026b. Internal Report on Electrification Needs in Health Facilities for World Bank. Yangon.

Swiss Agency for Development and Cooperation. 2024. "Support to RBF+ Programme."

World Bank. 2024b. Myanmar Energy Sector Update: Energy Poverty Amid Plenty (June 2024). Washington, DC: World Bank. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099062324221019838.

World Bank. 2025a. Myanmar: Connected Without Access — A Multi-Tier Framework Survey Report on Access to Electricity. Washington, DC: World Bank.

World Bank. 2025b. Myanmar Economic Monitor (December 2025). Washington, DC: World Bank.

World Bank. 2025c. Myanmar Firm Monitoring Survey, Round 20 (October 2025). Washington, DC: World Bank.

World Bank. 2026. Myanmar Economic Monitor (June 2026). Washington, DC: World Bank.

World Bank Group, ESMAP, and Solargis. 2019. "Global Solar Atlas 2.0: Photovoltaic Power Potential — Myanmar." World Bank Group, Washington, DC. https://globalsolaratlas.info/.

Annex: Methodology Note and Data Limitations

This report draws on a mixed-methods research approach combining primary data collection with secondary review. Research was conducted between January and April 2026. The methodology was developed and implemented by SPM under contract to the World Bank (Contract No. 7219167, IBRD - Myanmar, Yangon).

Primary Data Sources

Key Informant Interviews (KIIs)

Primary qualitative data were collected through KIIs conducted between January and February 2026. Interviews covered supply-side and demand-side stakeholders across the solar value chain, including EPCs, solar distributors, local commercial banks, development finance actors, and NGO/implementing partners. A group consultation was organized on January 15, 2026, under the auspices of GOGLA, convening international solar companies operating in or entering the Myanmar market. Follow-up one-on-one interviews were conducted to allow for more candid disclosure on pricing, procurement, and market dynamics. Additional KIIs were conducted during the World Bank field mission to Yangon from February 18 to 25, 2026, covering 13 organizations including World Bank project implementing partners, mini-grid operators, EPCs, development programs, and sector coordination bodies. Interview notes were recorded and reviewed by the World Bank team.

GOGLA Market Data

Quantitative market data on solar product sales volumes and trends were sourced from GOGLA's aggregated market tracking dataset for Myanmar, covering 2017 to 2025. Data were shared directly by GOGLA as part of the research collaboration and reflect reported figures from member companies and do not capture informal or gray-market imports, which are known to be significant in the Myanmar context.

HANS Health Facilities Survey

A structured survey of health facilities supported under the HANS project was conducted between January 15 and 31, 2026. The survey instrument covered existing energy sources, energy needs, solar system status and adequacy, maintenance practices, financing arrangements, willingness to pay, and solar readiness. A sampling frame was developed in coordination with the World Bank and the HANS implementing partners, which were responsible for facility selection within agreed criteria. The final sample was 215 facilities across five facility types (hospitals, district/township-level facilities, private clinics, rural and community health clinics, and mobile health clinics).

SPM Internal Data

SPM's proprietary monitoring, evaluation, and learning dataset and 2025 stakeholder survey informed various sections of the report. These include data from SPM's loan facilitation program covering over 75 C&I solar projects and US$850,000 in guarantees deployed since 2023, as well as qualitative and quantitative insights from SME clients across multiple states and regions.

Secondary Data and Desk Review

The desk review drew on published literature including prior World Bank and ESMAP reports, GOGLA market intelligence, government policy documents, and sector studies by development partners active in Myanmar's energy sector. SPM's existing knowledge base and prior research on the Myanmar solar market informed the framing of the market analysis, particularly the characterization of financing constraints and business model viability.

Data Limitations

The following limitations should be considered when interpreting the findings of this report:

- **Access and security constraints.** The ongoing conflict in Myanmar significantly restricted geographic coverage and stakeholder access. KIIs were concentrated in Yangon and Mandalay and among organizations with an established operational presence. Views from actors operating exclusively in conflict-affected areas may be underrepresented in the market analysis.

- **Self-reporting and commercial sensitivity.** Market data provided by private sector actors—including pricing, portfolio performance, and business model details—are based on self-reporting and could not be independently verified. Some participants may have withheld commercially sensitive information or overstated performance to protect competitive positions.
- **Informal and gray-market activity.** A significant share of solar imports and sales in Myanmar occurs through informal channels not captured in GOGLA or official customs data. Market size and penetration figures in this report should therefore be treated as indicative rather than comprehensive. To produce a realistic market size estimate, an adjustment factor of 2.5 was applied to the GOGLA baseline as a lower-bound correction. This factor was derived from primary data collected through KIIs with distributors and PAYGo operators between January and February 2026. Across interviewed companies, self-reported annual sales volumes consistently exceeded volumes implied by GOGLA's aggregated figures by a factor in the range of 2–3 times, with 2.5x representing the conservative end of this range. These figures are based on self-reporting and could not be independently verified; participants may have incentives to overstate performance. The resulting estimate of 80,000 units per year should therefore be treated as an indicative lower bound rather than a precise market-size figure.
- **HANS survey sampling and classification.** The HANS survey sample was drawn exclusively from facilities supported by HANS implementing partners and is not representative of the broader health facility population in Myanmar.
- **Data currency and rapidly evolving context.** The Myanmar political and economic context is highly dynamic. Key parameters—including grid tariffs, fuel prices, import licensing requirements, and the security situation— changed materially during the research period and may continue to evolve. The February 2026 industrial tariff increase and ongoing Middle East energy market volatility are examples of developments that postdate the primary data collection period and whose full market impact remains uncertain.
- **Limited residential and rural market data.** The residential and small-scale off-grid segment is significantly harder to capture through KIIs and formal data sources. The findings in this report are therefore weighted toward C&I and institutional actors, and conclusions about the residential market should be treated with additional caution.
- **Grid-connected household backup solar market sizing.** The estimate of 313,000 additional households with demand for solar backup products applies current SEK adoption rates as a proxy for addressable demand rather than a modeled estimate of potential uptake. This approach reflects existing patterns rather than forward-looking demand, and the true addressable market is likely larger given the pace of grid deterioration since 2021. The adoption rate applied requires verification against its original source, and the estimate should be treated as indicative, with a wide confidence range.
- **School energy access estimate.** The estimate of 13,000 schools that may benefit from improved energy access is derived by applying Tier 2 as a minimum functional service level—sufficient to support basic lighting and information and communications technology (ICT) use during operational hours. The 50,000-school baseline is sourced from pre-2021 data and may overestimate the number of schools currently operational in conflict-affected areas. The calculation methodology and the data source for current school-level energy access are not fully documented. Both the Tier 2 standard and the resulting estimate should be treated as applied assumptions rather than verified findings.
- **C&I firm market sizing.** The estimate of 5,000 firms representing a potential off-grid solar market does not fully reconcile with the stated inputs: Applying the 64 percent outage rate and 31 percent non-investment rate to a base of 80,000 registered firms yields approximately 16,000 firms. The additional filter applied to arrive at 5,000—likely reflecting firm size, sector, or geographic criteria relevant to off-grid rather than grid-connected solutions—is not documented. Both figures are presented in the report, with the 16,000 reflecting the directly derived estimate and the 5,000 representing a more specific but undocumented subset. Both should be treated as indicative.
- **GOGLA retail market data.** GOGLA-reported sales of 176,337 SEKs between 2020 and 2025 H1 represent a significant undercount of actual market activity: The number of Chinese manufacturers reporting to GOGLA has declined over time, and data are unavailable for 2022 and 2024. The 2021 and 2023 volume peaks reflect large one-off shipments rather than sustained demand trends. A significant proportion of sales are labeled PAYGo-enabled, but it is unclear whether this reflects in-country

deployment or product specifications at the point of shipment. All GOGLA-derived figures should be interpreted as directional rather than comprehensive.

- **SEK annual market size estimate.** The estimate of 80,000–160,000 SEKs sold annually in Myanmar is derived by applying adjustment factors of 2.5 and 5, respectively, to the GOGLA-reported annual average of approximately 32,000 units over the 2020–2025 H1 period. The lower-bound adjustment factor of 2.5 is based on primary data collected through KIIs with distributors and PAYGo operators conducted between January and February 2026, whose reported sales volumes for individual product categories consistently and significantly exceeded GOGLA's reported market averages—a pattern consistent with the known underreporting gap in the dataset. The upper-bound adjustment factor of 5 reflects GOGLA's published global methodology, which acknowledges that reporting coverage in markets with significant informal and gray-market activity is typically in the range of 20–40 percent of actual market volume; applying the lower end of that range (20 percent coverage) to the Myanmar baseline produces the 5x ceiling. The range is corroborated directionally by the 2025 MTF Follow-Up Survey, which implies an SHS installed base of approximately 1.9 million households nationally—substantially exceeding GOGLA's cumulative sales record and confirming that GOGLA data capture only a fraction of actual market activity. The category-level breakdown across solar lanterns, smaller SHS, and larger SHS follows GOGLA proportions as an approximation and should be treated as indicative; the degree of undercount likely varies by product category. Both the floor and ceiling figures carry a wide confidence range given the structural data gaps described in this annex.

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