MOROCCO'S ENERGY TRANSITION

Regulatory Risk and Commercial Opportunity Under Loi 82-21

Author: Salma Khamlichi
Date: June 2026
Classification: Open portfolio piece
Audience: International investors, infrastructure funds, and development finance institutions assessing exposure to Morocco's distributed renewable energy sector

EXECUTIVE SUMMARY

Morocco's energy market crossed a structural threshold on 9 June 2026. On that date, Decree No. 2-25-100, dated 5 March 2026 and published in Official Bulletin No. 7489 on 9 March 2026, entered into force as the implementing text for Loi 82-21. The new framework formally opens the country's grid to solar self-consumption and surplus energy sales for industrial and tertiary clients. For the first time, businesses can generate their own solar power, consume it on-site, and sell up to 20% of annual production back to the national grid at regulated tariffs of MAD 0.21 per kWh during peak hours and MAD 0.18 per kWh during off-peak hours. This is not an incremental policy update. It is the regulatory event that makes distributed solar finance structurally viable in Morocco.

The commercial opportunity is substantial. Between 2011 and 2023, Moroccan businesses and households installed approximately 336 MW of small-scale solar capacity with no regulatory framework supporting it. ANRE has declared a solar grid hosting capacity of 2,709 MW for 2026, with total available capacity after existing authorisations standing at 3,886 MW split 72% solar and 28% wind. Morocco's government has simultaneously launched the SR500 programme targeting 500 MWc of industrial and tertiary rooftop solar in partnership with Switzerland, linked to certificates of origin for renewable electricity traceability. The structural demand drivers are reinforced by CBAM: Moroccan exporters to the EU face carbon border adjustment costs that make documented solar self-consumption a supply chain necessity, not a discretionary investment.

However, the investment case carries three material risks that require precise assessment. First, the regulatory framework is not complete. Loi 82-21 passed in 2023 but required a further three years to produce an implementing decree, and several additional texts remain outstanding. Second, grid access is constrained: the 20% surplus injection cap and connection limits set by ANRE mean that project returns depend on optimising on-site consumption rather than export revenues, a fundamentally different bankability model from feed-in-tariff structures. Third, Morocco's energy transition carries structural dependencies identified by Oxford University researchers as its highest-risk features: economic dependence on international finance institutions and technological dependence on foreign companies, both of which affect project sovereignty and long-term cost trajectories.

This brief maps the regulatory landscape, quantifies the market opportunity, and presents three scenarios for Morocco's distributed solar market to 2030. It draws on primary regulatory sources including ANRE and the official bulletin, KardaTech's operational intelligence on Morocco's distributed solar market, and peer-reviewed analysis published in the Renewable and Sustainable Energy Reviews journal.

SECTION 1: MARKET CONTEXT

Morocco imports approximately 90% of its energy needs. That single figure defines the strategic logic of the country's energy transition. Unlike Gulf states whose energy policy is shaped by hydrocarbon abundance, Morocco's transition is driven by structural necessity: a fossil fuel import dependency that creates persistent inflation exposure to global oil and gas price cycles, a growing electricity demand increasing at roughly 5% per year since 2004, and an export economy increasingly exposed to the EU's Carbon Border Adjustment Mechanism (CBAM).

The electricity mix reflects this dependency. Coal accounted for 59.3% of Morocco's electricity mix in 2024, down from approximately 70% in 2022, according to figures cited by the Powering Past Coal Alliance and corroborated by Morocco's National Office of Electricity and Drinking Water (ONEE). Renewables

contributed an estimated 27 to 28% of national electricity generation that year, principally from wind, solar, and hydropower, with the balance from gas and net imports. Morocco's installed renewable capacity reached 45.5% by mid-2025 according to IEA-PVPS, ahead of its original 2030 trajectory, but the electricity generation mix remains structurally fossil-fuel-dependent. The distinction matters for investors: installed capacity figures flatter Morocco's transition progress because dispatchable coal and gas plants continue to dominate actual generation.

Morocco's renewable energy ambitions are anchored in three policy commitments. Its 2030 Nationally Determined Contribution (NDC 2.0, submitted in 2021) targets 52% renewable installed capacity, split 20% solar, 20% wind, and 12% hydropower, with a 45.5% reduction in greenhouse gas emissions below business-as-usual by 2030 (18.3% unconditional plus 27.2% conditional on international financing). In October 2025, Morocco submitted NDC 3.0, which raises the headline target to a 53% GHG reduction below business-as-usual by 2035 (21.6% unconditional plus 31.4% conditional) and commits to tripling renewable energy capacity to over 15 GW by 2030, alongside a build-out of storage and grid interconnections. NDC 3.0 also includes Morocco's first formal coal phase-out date: 2040 subject to international support, or in the 2040s unconditionally. This commitment follows Morocco's accession to the Powering Past Coal Alliance at COP28 in December 2023. These targets create a durable regulatory tailwind for solar investment. They also create a specific commercial incentive directly relevant to distributed solar: Moroccan industrial exporters to the EU face CBAM compliance costs from 2026 onward, making documented on-site solar self-consumption a measurable supply chain decarbonisation tool rather than a discretionary sustainability investment.

The market for distributed solar has developed faster than the regulatory framework designed to govern it. Between 2011 and the end of 2023, Moroccan households and businesses invested at least MAD 3.36 billion to install approximately 336 MWp of decentralised solar capacity in the absence of any clear legal framework for self-consumption or surplus sales, according to a November 2025 mapping by the Imal Initiative for Climate and Development. This unsupported growth signals latent demand that Loi 82-21 is now designed to formalise and scale. The same Imal Initiative study estimates Morocco's decentralised solar potential at up to 28.6 GW, with the potential to create a USD 31 billion market opportunity. The national grid hosting capacity declared by ANRE for 2026 stands at 2,709 MW (revised down from 2,900 MW initially projected), with 3,886 MW of available capacity remaining after existing authorisations, split 72% solar and 28% wind.

The CBAM dimension deserves particular attention. Morocco's industrial export base, concentrated in textiles, automotive components, phosphates, and fertilisers, generates significant embedded carbon exposure. As CBAM Phase 2 costs bite from 2026, industrial clients in these sectors face a binary commercial logic: document and reduce embedded carbon costs through verified on-site renewables, or absorb rising border adjustment charges. Loi 82-21, combined with Morocco's new certificates of origin framework for renewable electricity traceability, provides the legal and technical infrastructure through which industrial clients can generate, consume, and document solar production in CBAM-compliant form. This is the demand driver that makes the distributed solar market commercially durable rather than policy-dependent.

SECTION 2: LOI 82-21 — WHAT THE LAW DOES AND WHAT IT DOES NOT YET DO

Loi 82-21 on electricity self-generation was promulgated by Dahir No. 1.23.21 of 10 February 2023. Its implementing decree, Decree No. 2-25-100, was adopted by the Government Council on 23 October 2025, dated 5 March 2026, published in Official Bulletin No. 7489 on 9 March 2026, and entered into force on 9 June 2026, three months after publication. The three-year gap between the law and its operationalisation is itself an indicator of the implementation risk that characterises Morocco's renewable energy regulatory history.

The decree establishes three distinct procedural regimes based on project size and grid connection type. The first is a declaration regime, applying to small off-grid systems and low-voltage grid-connected installations. The second is a connection agreement regime, covering medium-scale installations connected to the medium-voltage grid, with construction approval issued within 30 days of a complete application. The third is an authorisation regime, applying to installations of 5 MW or more connected to medium, high, or very high-voltage networks. Construction must be completed within two years of the connection agreement being signed. These procedural timelines give investors a defined regulatory pathway for the first time, replacing the legal ambiguity that characterised the pre-2026 distributed solar market.

The commercial terms are equally specific. Self-producers can inject and sell surplus energy back into the public grid, up to a strict limit of 20% of their annual production. Power plant owners receive MAD 0.21 per kWh during peak hours and MAD 0.18 per kWh during off-peak hours. The tariff for using the medium-voltage distribution network is set at MAD 0.0607 per kWh, with the national transmission network tariff at MAD 0.0638 per kWh.

The 20% surplus cap is the most commercially significant feature of the framework. At MAD 0.21 per kWh peak and MAD 0.18 per kWh off-peak, surplus export revenues are modest. The economics of a Loi 82-21 project are therefore built on maximising on-site consumption, not export revenues. This fundamentally shapes the bankability model: returns depend on the spread between the self-consumed solar cost and the avoided grid electricity cost, rather than on feed-in tariff income. For industrial clients with high daytime electricity consumption, this spread is commercially significant. For projects with low on-site consumption profiles, the 20% cap compresses returns materially.

The framework is live but not complete. Although Loi 82-21 was passed in 2023, several additional texts are still needed for full implementation. The low-voltage residential tariff has not yet been set. Article 33 of Loi 82-21 establishes a transitional regime for self-generation installations already in service before the decree's entry into force, with a regularisation window of approximately 18 months from 9 June 2026 (operators should verify the precise deadline against the decree text and any subsequent ANRE communications). Regulatory clarity for agrivoltaics, building-integrated photovoltaics, and battery storage co-location remains outstanding. Investors entering the market in 2026 are operating under a framework that is more complete than anything previously available, but that still carries meaningful implementation risk in its remaining gaps.

The SR500 programme, launched in early 2026 with Swiss development partnership support, provides a parallel commercial pathway. It targets 500 MWc of industrial and tertiary rooftop solar, eligible for projects up to 3 MWc per site, linked to Morocco's new certificates of origin framework for renewable electricity traceability. SR500 projects cannot simultaneously benefit from surplus sales revenue under Loi 82-21, creating a structural choice for industrial clients between the traceability and carbon documentation benefits of the certificate-of-origin pathway and the modest revenue upside of the surplus injection framework.

SECTION 3: INVESTMENT AND FINANCING LANDSCAPE

Morocco's distributed solar market is entering its first phase of genuine bankability. Before Loi 82-21, the absence of a legal framework for self-consumption meant that distributed solar assets could not be structured for project finance. They had no revenue certainty, no regulatory status, and no pathway to auditable performance data. Those conditions are now changing, but the transition from legal possibility to bankable project pipeline requires several additional conditions that are only partially in place.

The SPV Model

The commercially viable structure for distributed solar investment in Morocco under Loi 82-21 is a Special Purpose Vehicle (SPV)-based Energy-as-a-Service (EaaS) model. The developer creates a legally separate entity to own and operate a solar installation on a client's site. The industrial client signs a Contrat de Transition Energétique (CTE), committing to purchase the energy produced at a defined rate over a long-term period, typically 10 to 20 years. The SPV owns the asset, receives the energy revenue, and services debt from that revenue stream. This structure isolates project risk from sponsor risk, creates a definable cash flow for lenders, and removes the upfront capital expenditure barrier for industrial clients.

The bankability of this model depends on four conditions. First, the offtaker must be creditworthy. For industrial clients in Morocco's textile, automotive, and agri-processing sectors, offtaker risk assessment requires sector-specific due diligence, particularly given the CBAM-driven cost pressures those clients face. Second, the regulatory status of the installation must be clear, which Loi 82-21 now provides for the first time. Third, performance data must be monitored and auditable, which is where data infrastructure platforms become operationally relevant. Fourth, the SPV's financial model must demonstrate adequate debt service coverage to attract commercial bank debt or green credit line financing.

Available Financing Mechanisms

Several financing mechanisms are now available for Moroccan distributed solar projects, at different stages of maturity.

The European Bank for Reconstruction and Development (EBRD), in partnership with the Green Climate Fund (GCF) and Canada, committed up to EUR 50 million to Crédit du Maroc in December 2025 under the EU-backed Morocco Decarbonisation and Climate Resilience programme. The facility combines a Green

Economy Financing Facility (GEFF) targeting small and medium-sized enterprises with a larger corporate facility. This is the most directly accessible green credit line for Moroccan industrial clients financing distributed solar installations and represents a concrete financing pathway for projects under the Loi 82-21 framework.

The European Investment Bank (EIB) and KfW have both financed Morocco's centralised renewable programme, including the 305 MW Noor Atlas PV programme, for which Power Purchase Agreements were signed and construction commenced in March 2026. Noor Atlas comprises six solar PV plants across eastern, southeastern, and southern Morocco, financed by KfW, EIB, and Bank of Africa under MASEN and ONEE management, with grid commissioning targeted for July 2027. EIB and KfW involvement in distributed solar is less established than in centralised utility-scale projects, but their mandates are aligned with the bankability and MRV requirements that Loi 82-21 projects must now meet. The SR500 programme's Swiss development partnership provides a third bilateral channel, specifically targeting the 500 MWc industrial rooftop pipeline.

Carbon finance represents an emerging but structurally underdeveloped revenue layer. Morocco's certificates of origin framework creates the traceability infrastructure through which verified solar self-consumption can be documented for CBAM compliance. The conversion of that documentation into tradeable carbon instruments or verified emissions reductions under international standards is not yet operationalised. Investors should treat carbon revenue as a potential upside scenario rather than a base-case assumption for 2026 to 2028 projects.

The Bankability Gap

The most significant constraint on distributed solar investment in Morocco is not regulatory or financing availability. It is the gap between the installed base of approximately 336 MW of legacy solar assets built without Measurement, Reporting, and Verification (MRV) infrastructure, and the auditable, finance-ready standards that lenders and green credit line facilities require. The majority of Morocco's existing commercial and industrial solar installations have no performance monitoring, no standardised documentation, and no pathway to regularisation under the new framework without investment in data infrastructure.

The transitional regularisation window under Article 33 of Loi 82-21 creates a structured opportunity to address this gap. Operators who invest in qualifying their existing assets during this window can access financing mechanisms that were previously unavailable. Those who do not will find their assets stranded outside the regulatory framework as enforcement tightens. This dynamic creates a near-term pipeline of asset regularisation work that precedes the broader market build-out and represents the most actionable near-term commercial opportunity in Morocco's distributed solar market.

SECTION 4: RISK MATRIX

The following risk matrix identifies the principal risks for international investors in Morocco's distributed solar market. Ratings are assigned across three categories: High, Medium, and Low. Ratings reflect the current state of the regulatory and political environment as of June 2026.

RISK	RATING	INVESTOR IMPLICATION
Regulatory implementation lag	**HIGH**	Loi 82-21 took three years to operationalise after passage. Several implementing texts remain outstanding. Low-voltage residential tariff not yet set. Investors should not assume regulatory completeness.
Grid access constraints	**HIGH**	ANRE declared grid hosting capacity fell from 2,900 MW projected to 2,709 MW actual for 2026. Connection caps and authorisation queues may slow deployment. North-south transmission bottlenecks are structural.
Offtaker credit risk	**MEDIUM**	Industrial clients in CBAM-

RISK	RATING	INVESTOR IMPLICATION
		exposed sectors face rising input costs. Creditworthiness assessment of SME offtakers requires bespoke due diligence. Sector concentration in textiles and automotive creates correlated risk.
Western Sahara project geography	**HIGH**	Several IFIs decline to finance projects in Western Sahara. In 2025, eight UN Special Rapporteurs urged Morocco to halt demolitions linked to renewable expansion in the territory. Projects in southern regions require geography-specific legal and reputational due diligence.
Technological dependence	**MEDIUM**	Morocco relies on imported solar panel technology and foreign engineers. Oxford University research identifies this as a top-two resource curse risk. No Moroccan company currently manufactures specialist solar components.
Economic dependence on IFIs	**MEDIUM**	Most large Moroccan RE projects are co-funded by IFIs including the Arab Fund for Economic and Social Development and the EIB. IFI conditions influence technology choices and project geography. Oxford research identifies this as Morocco's highest-risk structural vulnerability.
Carbon revenue uncertainty	**LOW**	Certificates of origin framework is in place but conversion to tradeable carbon instruments is not operationalised. CBAM compliance value is real but not yet monetisable as project revenue. Treat as upside only.
Currency risk	**MEDIUM**	Surplus injection tariffs are denominated in MAD. Green credit line financing from EBRD and EIB is in EUR. Currency mismatch between revenue and debt service requires hedging strategy for foreign investors.
Battery storage gap	**MEDIUM**	The 20% surplus cap makes storage economically necessary to optimise returns. Regulatory clarity for battery co-location remains outstanding. Projects underwritten without storage assumptions may underperform as grid access tightens.

SECTION 5: SCENARIO OUTLOOK TO 2030

Three principal scenarios structure the outlook for Morocco's distributed solar market over the period 2026 to 2030. Probability estimates reflect the current regulatory and political environment and are subject to revision as implementation progresses.

Scenario 1: Accelerated Build-Out (Probability: 30%)

Trigger conditions: Remaining Loi 82-21 implementing texts are published by end of 2026. Low-voltage residential tariff is set. Battery storage co-location rules are clarified. ANRE maintains or increases grid hosting capacity above 2,709 MW. EBRD and bilateral green credit lines are extended and scale up.

Market outcome: The 336 MWp legacy distributed solar base is substantially regularised within the Article 33 transitional window. The SR500 programme reaches 300 MWc of new industrial rooftop installations by 2028. Green hydrogen and agrivoltaics create additional demand pull. Morocco approaches 10 GW of total renewable installed capacity by 2030, on track with its NDC 3.0 trajectory of over 15 GW. Distributed solar becomes a well-established asset class with a functioning secondary market for SPV equity.

Investor implication: Early movers who establish regularisation and MRV infrastructure during the 2026 to 2027 window capture disproportionate market share. CBAM-linked offtake agreements with creditworthy industrial exporters become the most defensible revenue structure.

Scenario 2: Incremental Progress (Probability: 55%)

Trigger conditions: Implementing texts are published but slowly, with battery storage and agrivoltaics clarity delayed into 2027 to 2028. Grid hosting capacity remains constrained by north-south transmission bottlenecks. EBRD GEFF facility is drawn down but not significantly expanded. IFI funding conditions continue to exclude Western Sahara project geographies for many funders.

Market outcome: The distributed solar market grows but at a pace constrained by regulatory incompleteness and grid access queues. The SR500 programme achieves 150 to 200 MWc by 2028. Legacy asset regularisation is partial, with well-capitalised developers capturing most opportunities. Morocco meets its 52% renewable installed capacity target by 2028 to 2029 but the distributed segment remains a minority of that total. Carbon finance remains an upside scenario with no base-case contribution.

Investor implication: Returns are achievable but require patience and regulatory monitoring capability. Offtaker quality is the primary underwriting variable. Investors without on-the-ground regulatory intelligence are exposed to implementation surprises.

Scenario 3: Regulatory Stall (Probability: 15%)

Trigger conditions: Key implementing texts are delayed beyond 2027. Grid saturation triggers a reduction in ANRE's declared hosting capacity below current levels. A major IFI or bilateral funder withdraws from Morocco over Western Sahara reputational exposure. CBAM Phase 2 is delayed or renegotiated at the EU level, reducing demand-pull from industrial exporters.

Market outcome: New distributed solar investment slows materially. The regularisation window passes with limited uptake. Morocco's NDC 3.0 trajectory depends almost entirely on utility-scale centralised projects. The distributed solar market remains fragmented, undocumented, and largely outside the bankable project finance universe.

Investor implication: Capital deployment should be staged and conditional on regulatory milestones. Positions taken in 2026 should be structured to preserve optionality. Contractual protections against regulatory change become essential underwriting requirements.

SOURCES AND METHODOLOGY

This brief draws on the following primary and secondary sources:

- Decree No. 2-25-100, dated 5 March 2026, published in Official Bulletin No. 7489 on 9 March 2026 (implementing decree for Loi 82-21)
- ANRE grid hosting capacity declaration, 2026
- pv magazine, Morocco finally unlocks solar self-consumption, 20 March 2026

- Ashurst LLP, C&I and Off-Grid Projects Now Operational in Morocco, April 2026
- Energy Partnership Morocco-Germany, Self-Generation of Electricity: New Implementing Decree, 2026
- EBRD, Morocco Decarbonisation and Climate Resilience Programme announcement, December 2025
- Morocco World News, Morocco Launches SR500 Solar Rooftop Program with Swiss Partnership, February 2026
- Leonard, Ahsan, Charbonnier, Hirmer, Renewable energy in Morocco: Assessing resource curse risks, Renewable and Sustainable Energy Reviews, 2024
- Western Sahara Resource Watch, Morocco allocates land in occupied Western Sahara to green hydrogen investors, 2026
- US State Department, 2025 Investment Climate Statements: Morocco
- KardaTech operational intelligence on Morocco's distributed solar market, 2025 to 2026
- Imal Initiative for Climate and Development, The Potential of Distributed Renewable Energy Systems in Morocco, November 2025 (336 MWp installed base estimate and 28.6 GW distributed solar potential)
- Imal Initiative for Climate and Development, Morocco's NDC 3.0: Setting Ambition in Tripling Renewables, October 2025
- Climate Analytics, Morocco 1.5°C National Pathway Explorer (NDC analysis)
- Fidal, Autoproduction d'énergie électrique au Maroc, 2026 (regulatory commentary on Decree No. 2-25-100)
- pv-magazine.fr, Le Maroc débloque enfin l'autoproduction solaire, 20 March 2026
- IEA-PVPS Morocco country profile, 2026 (45.5% installed renewable capacity mid-2025; ANRE hosting capacity revisions)
- Powering Past Coal Alliance, Morocco sets conditional date to phase out coal power by 2040, October 2025
- pv-magazine.com, Morocco begins construction on 305 MW Noor Atlas solar program, 11 March 2026
- MEES (Middle East Economic Survey), Morocco Launches Delayed 305MW Noor Atlas Solar PV Project, 13 March 2026 (installed capacity and end-2024 renewables share)

This brief is produced as an independent analytical portfolio piece. Analysis is the author's own. Salma Khamlichi holds an MA in Diplomacy and Global Politics with Distinction from the University of Westminster and works as an Intelligence and Due Diligence Analyst at KardaTech. Contact: khamlichi1704@gmail.com | salmakhamlich.pages.dev