

EASE OF DOING SOLAR

2026



Foreword



The global solar transition has entered a new phase. In 2026, global solar capacity crossed 3 TW – a milestone that would have seemed extraordinary only a few years ago. Solar is now at the centre of the global energy transition, accounting for nearly three-quarters of renewable capacity additions in 2025. Yet the next phase of the transition will be defined not simply by how much solar we add, but by how effectively we translate this momentum into reliable, affordable and inclusive energy systems across countries and regions.

The International Solar Alliance launched Ease of Doing Solar in 2019 as a four-country pilot to understand the barriers between solar ambition and on-the-ground deployment. Five editions later, **EoDS 2026** covers 127 Member and Signatory Countries. Its purpose has evolved with the transition itself: from asking whether countries are ready for solar to asking whether they can finance, sustain and scale it.

The world added a record 655 GW of solar capacity in 2025, yet across the ISA membership, more than 90% of investment flowed to just 26 countries. Our 47 African members collectively received around USD 9 billion. This is not a shortage of sunlight, nor of need or ambition, it is purely a gap in access to affordable, appropriate capital. For many emerging and developing economies, that challenge is compounded by currency risk and the high cost of borrowing. The energy shock of early 2026 underlined an important lesson: energy dependence creates financial vulnerability, while locally financed clean energy can strengthen both energy sovereignty and economic resilience.

That is why this fifth edition puts **Local Currency Financing** at its core. A new **regional classification**, introduced in this edition, enables countries to compare

progress with its relevant peers. **Energy Transition Pathways** provide a clearer picture of each country's starting point, while the **SOLARISE Matrix** identifies solar applications positioned for scale. **Distributed Solar**, as a technology, is recognized not as a peripheral solution, but as an essential pathway for bringing reliable energy to communities that need it most. EoDS is ultimately not a ranking; it is a tool for action. It seeks to help governments identify the reforms that matter, financiers understand where risk can be addressed, development partners target support more effectively, and industry see where the global opportunity is emerging. The world does not lack capital for the solar transition; the challenge is to make that capital accessible, affordable and fit for purpose in the countries where its impact can be greatest. That is the transition we must now deliver.

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Ashish Khanna

Director General, International Solar Alliance

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ISA TEAM

Lead authors

Kanv Garg, Chief of Unit, Resource Mobilisation Unit

Saachi Singla, Private Sector Specialist, Resource Mobilisation Unit

Reviewers

Namrata Mukherjee, Strategic Planning Specialist

Dr. Mridula Bharadwaj, Capacity Building Specialist

ERNST & YOUNG (EY)

Mohammad Saif, Partner of Power & Utilities

Yatish Oli, Director

Soumya Prakash Nayak, Associate Vice President

Sambhav Jain, Senior Consultant

Lovie Gupta, Senior Consultant

Chinmoy Prasad, Senior Consultant

Contributors

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List of Abbreviations

Abbreviation	Meaning
AAA	Highest credit rating category
AC	Alternating Current
ACOB	ACOB Lighting Technology Ltd.
ACWA Power	International power-generation and water-desalination developer
ADB	Asian Development Bank
AFC	Automatic Frequency Control
AfDB	African Development Bank
AMEA Power	Renewable-energy developer headquartered in the United Arab Emirates
AMI	Advanced Metering Infrastructure
ANBIMA	Brazilian Financial and Capital Markets Association
ASF	Africa Solar Facility
AUD	Australian Dollar
BDO	BDO Unibank
BEPZA	Bangladesh Export Processing Zones Authority
BERC	Bangladesh Energy Regulatory Commission
BESS	Battery Energy Storage System
BEZA	Bangladesh Economic Zones Authority
BII	British International Investment
BIPV	Building-Integrated Photovoltaics
BNEF	BloombergNEF
BOI	Board of Investments
BPA	Bulk Power Authority
BPC	Bhutan Power Corporation
BPDB	Bangladesh Power Development Board
BPI	Bank of the Philippine Islands
BRD	Development Bank of Rwanda
BRL	Brazilian Real
Bs	Bolivian Boliviano
CAGR	Compound Annual Growth Rate
CCDR	Country Climate and Development Report
CCREEE	Caribbean Centre for Renewable Energy and Energy Efficiency
CEB	Ceylon Electricity Board
CEET	Clean Energy and Energy Transition
CFBR	Cost of Finance Benchmarking Report

Abbreviation	Meaning
C&I	Commercial and Industrial
CIB	Corporate and Investment Bank
CIF	Climate Investment Funds
CIL	Coal India Limited
CO2	Carbon Dioxide
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CRGE	Climate-Resilient Green Economy
CSA	Climate-Smart Agriculture
CSP	Concentrated Solar Power
CTBC	CTBC Bank
CTF	Clean Technology Fund
CUF	Capacity Utilization Factor
DARES	Distributed Access through Renewable Energy Scale-up
DBS	DBS Bank
DFI	Development Finance Institution
DG	Distributed Generation
DGPC	Druk Green Power Corporation
DPI	Digital Public Infrastructure
DRE	Distributed Renewable Energy
DRI	Direct Reduced Iron
DSCR	Debt Service Coverage Ratio
EaaS	Energy-as-a-Service
EASP	Electricity Access Scale-up Project
EBRD	European Bank for Reconstruction and Development
ECG	Electricity Company of Ghana
EDCL	Energy Development Corporation Limited
EJ	Exajoule
EoDS	Ease of Doing Solar
EPC	Engineering, Procurement and Construction
ERA	Electricity Regulatory Authority
ESCO	Energy Service Company
ESG	Environmental, Social and Governance
ESMAP	Energy Sector Management Assistance Program

Abbreviation	Meaning
ESS	Energy Storage System
EU	European Union
EUR	Euro
EV	Electric Vehicle
FDI	Foreign Direct Investment
FGN	Federal Government of Nigeria
FiT	Feed-in Tariff
FONERWA	Rwanda Green Fund
FX	Foreign Exchange
FY	Financial Year
GCF	Green Climate Fund
GDP	Gross Domestic Product
GET	GET Comercializadora de Energia S.A.
GHG	Greenhouse Gas
GRIDCo	Ghana Grid Company
GSF	Global Solar Facility
GW	Gigawatt
GWh	Gigawatt-hour
GWp	Gigawatt-peak
H ₂	Hydrogen
ha	Hectare
hr / hrs	Hour / hours
HSBC	Hongkong and Shanghai Banking Corporation
ICMA	International Capital Market Association
IDB	Inter-American Development Bank
IDCOL	Infrastructure Development Company Limited
IEA	International Energy Agency
IFC	International Finance Corporation
IMF	International Monetary Fund
IoT	Internet of Things
IPP	Independent Power Producer
IRENA	International Renewable Energy Agency
IRP	Integrated Resource Plan
ISA	International Solar Alliance
JV	Joint Venture
KES	Kenyan Shilling
KGI	KGI Bank
km	Kilometre
KPF	Kiribati Provident Fund
KPI	Key Performance Indicator
kVA	Kilovolt-ampere

Abbreviation	Meaning
kW	Kilowatt
kWh	Kilowatt-hour
kWp	Kilowatt-peak
LAC	Latin America and the Caribbean
LCF	Local Currency Financing
LCOE	Levelized Cost of Electricity
LCU	Local Currency Unit
LDC	Least Developed Country
LFP	Lithium Iron Phosphate
Li-ion	Lithium-ion
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LV	Low Voltage
MDB	Multilateral Development Bank
MEMD	Ministry of Energy and Mineral Development
MFI	Microfinance Institution
MGEN	Meralco PowerGen Corporation
MIGA	Multilateral Investment Guarantee Agency
MINECOFIN	Ministry of Finance and Economic Planning
MININFRA	Ministry of Infrastructure
MM	Multiple Maturity
MoU	Memorandum of Understanding
MRV	Monitoring, Reporting and Verification
MSME	Micro, Small and Medium Enterprise
MtCO ₂ e	Million Tonnes of Carbon Dioxide Equivalent
MUFG	Mitsubishi UFJ Financial Group
MV	Medium Voltage
MW	Megawatt
MWac	Megawatt alternating current
MWdc	Megawatt direct current
MWh	Megawatt-hour
MWp	Megawatt-peak
NBFC	Non-Banking Financial Company
NDB	New Development Bank
NDC	Nationally Determined Contribution
NEA	National Energy Authority
NEAT	National Energy Access Transformation Project
NEDCo	Northern Electricity Distribution Company
NEP	Nigeria Electrification Project
NERC	Nigerian Electricity Regulatory Commission
NGN	Nigerian Naira

Abbreviation	Meaning
NPL	Non-Performing Loan
NTD	New Taiwan Dollar
OECS	Organisation of Eastern Caribbean States
OLSA	Omnibus Loan and Security Agreement
O&M	Operations and Maintenance
OMVG	Organisation pour la Mise en Valeur du fleuve Gambie
OSOWOG	One Sun One World One Grid
PAYGo	Pay-as-you-go
PER II	Programa de Electrificación Rural II
PEVD	Programa Electricidad para Vivir con Dignidad
PGCB	Power Grid Company of Bangladesh
PHP	Philippine Peso
PNB	Philippine National Bank
PNG	Papua New Guinea
PPA	Power Purchase Agreement
PPP	Public-Private Partnership
PSA	Power Supply Agreement
PUB	Public Utilities Board
PURA	Public Utilities Regulatory Authority
PURE	Productive Use of Renewable Energy
PV	Photovoltaic
PVOUT	Photovoltaic Power Output
RE	Renewable Energy
REG	Rwanda Energy Group
RERF	Revenue Equalization Reserve Fund
RESCO	Renewable Energy Service Company
RISE	Regulatory Indicators for Sustainable Energy
RMI4P/ RMIPPPP	Risk Mitigation Independent Power Producer Procurement Programme
ROI	Return on Investment
RTC	Round-the-Clock
RURA	Rwanda Utilities Regulatory Authority
SAF	Sustainable Aviation Fuel
SBD	Solomon Islands Dollar
SCEE	Sistema de Compensação de Energia Elétrica
SEC	Securities and Exchange Commission
SECI	Solar Energy Corporation of India
SEEC	Shihlin Electric & Engineering Corporation
SGD	Singapore Dollar
SHS	Solar Home System
SIDS	Small Island Developing States
SIEA	Solomon Islands Electricity Authority

Abbreviation	Meaning
SME	Small and Medium-sized Enterprise
SOE	State-Owned Enterprise
SPNEC	Solar Philippines Nueva Ecija Corporation
SREDA	Sustainable and Renewable Energy Development Authority
STAR-C	Solar Technology Application Resource Centre
tCO ₂ e	Tonnes of Carbon Dioxide Equivalent
T&D	Transmission and Distribution
UAC	Universal Access Coalition
UAE	United Arab Emirates
UEDCL	Uganda Electricity Distribution Company Limited
UETCL	Uganda Electricity Transmission Company Limited
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
UNE	Unión Eléctrica
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USD	United States Dollar
VAT	Value Added Tax
VRA	Volta River Authority
WBG	World Bank Group
Wp	Watt-peak
ZAR	South African Rand





Executive Summary

EODS 2026 AT A GLANCE

655 GW

of solar added in 2025, more than in any previous year

> 2.8 TW

total installed capacity

USD 436 bn

global solar investment, down 12% year-on-year (excluding co-located solar and storage)

~USD 203 bn

invested across the 127 ISA Member Countries assessed

~92%

of that investment flowed to just 26 countries

~USD 9 bn

attracted by ISA's 47 African members

The world added 655 GW of solar in 2025, more than in any previous year, taking total installed capacity to more than 2.8 TW. Yet the growth story is increasingly uneven. Global solar investment declined by 12% year-on-year to USD 436 billion (excluding co-located solar and storage), and it remained heavily concentrated in developed countries.

The same asymmetry runs through the 127 ISA Member and Signatory Countries (hereinafter referred to as ISA Member Countries). Of approximately USD 203 billion invested across the countries assessed, about 92% flowed to just 26 countries, while the remaining 101 countries together received about 8% of these investments. ISA's 47 African members, despite their substantial solar resources, growing electricity demand and significant need for distributed renewable energy (DRE) solutions to expand energy access, attracted only around USD 9 billion. Capital is flowing to where it is easiest to deploy. The report does not measure development return, but access gaps are largest where flows are smallest.

Closing this gap between solar opportunity and solar deployment is the central challenge for the Global South and the organizing question of this report. EoDS 2026 assesses the conditions that enable countries to attract, deploy and scale solar investment, positioning countries across the global classifications of **Achiever, Influencer, Progressive and Potential** and the regional classifications of **Exemplar** and **Emergent**. The report further examines financing and investment patterns, evaluates energy-security considerations, and identifies practical pathways for accelerating solar deployment across ISA Member Countries.

The six messages that follow tell the full story: where solar stands, what is holding it back, and where the opportunity for change lies. Each carries a distinct insight; together they form a connected narrative linking today's deployment trends to the financing challenges, policy choices and market conditions that will shape solar's next phase of growth.



Key Messages

Regional Peer Classification should be Institutionalized as a Core Implementation-Support Mechanism:

While none of Africa's 47 ISA Member and Signatory Countries qualify as Global Achievers, 18 emerge as Regional Exemplars, demonstrating that progress is better understood and accelerated through comparisons with countries facing similar financing, institutional, and market conditions.

Global classification shows overall progress, but regional classification reveals relevant pathways for improvement. None of ISA's 47 African members has qualified for the global Achiever tier, yet 18 of them are exemplars within the African region. Regional benchmarking therefore identifies leaders operating under more comparable financing, institutional and market conditions.

The African experience shows why these factors matter. Despite much of the continent receiving over 5 kWh/m²/day of solar irradiation, borrowing costs in many markets remain as high as 16–20%, compared with about 7–12% in Morocco, Senegal and Botswana. Outcomes also diverge sharply: solar contributes only 0.16% of electricity generation in Ethiopia, where the financing ecosystem remains limited, compared with 35% in Namibia, where a stronger ecosystem has emerged.

The binding constraint also differs by country. Uganda faces limited banking access; Sri Lanka uses local-currency power contracts but has high borrowing costs; Bhutan has few dedicated solar-finance products; and Mauritius faces a limited pipeline of bankable projects. Peer experience can point to targeted responses, from currency-risk cover in Morocco and local-bank participation in Chile to public finance mobilizing private capital in Australia.

Regional classification should therefore move from benchmarking to implementation support. Identifying regional leaders by constraint can help countries adopt solutions already demonstrated in more comparable markets, making the EoDS classification a diagnostic framework not only for measuring progress, but also for translating peer experience into country-specific action.



Prioritize Local Currency Financing over the Pursuit of Universally Low Borrowing Costs:

With 81% of Achievers using local-currency power contracts, compared with just 4% of Potential countries, the evidence shows that aligning repayments with domestic revenues, reducing currency mismatches and enhancing credit through robust institutions are often more critical than achieving the lowest financing rates.

India attracted approximately USD 21 billion in solar investment in 2025, with indicative utility-scale financing costs of 8.5–11.5%. Brazil attracted approximately USD 13.7 billion, with financing costs of 11–13.5%. Consistent policies and a reliable auction pipeline support India's investment growth, while Brazil benefits from an established solar market, supportive policies and domestic manufacturing. **Both examples show that substantial investment is possible without exceptionally cheap capital.**

South Africa provides a complementary example of local currency financing. Despite indicative country-level financing costs of 11–13.5%, the Kenhardt solar-plus-storage project secured approximately ZAR 12.4 billion in rand-denominated debt. A 20-year

Eskom PPA, standardized procurement and development-finance participation supported the transaction. Although the project's borrowing rate is not disclosed, it illustrates how predictable revenues and currency alignment can support financing in a relatively high-cost market.

Local currency finance should therefore not be equated with cheap finance. It aligns repayments with domestic revenues and reduces currency mismatch, but its overall cost depends on domestic interest rates and available alternatives. Lower borrowing costs remain desirable, but stronger payment security, suitable loan tenors and bankable project structures are equally important to mobilizing investment.



Unlock Domestic and South-South Capital as the Next Frontier of Solar Finance while Redirecting Institutional Savings into **De-Risked Local-Currency Solar Assets**:

Leveraging capital pools such as Nigeria's pension funds (63% in government securities) and Kiribati's sovereign fund (330% of GDP) can help reduce financing costs and scale solar deployment.

Solar does not lack capital; it lacks the right placement and the right currency. Of the roughly USD 203 billion invested in solar across ISA Member Countries in 2025, USD 187 billion went to the 26 achiever countries, and the other 101 shared about USD 16 billion.

Many countries already have large pools of domestic savings, but very little of this money reaches solar projects. Over 63% of Nigeria's pension assets are held in government securities. Kiribati's sovereign fund is worth around 330% of its GDP. Mauritius has a financial sector worth about 500% of GDP, but under 1% of bank lending goes to renewables. What holds these pools back is investment rules and risk, not a shortage of projects.

Where risk is shared, domestic savings do follow. In Nigeria, an InfraCredit guarantee with first-loss support made ACOB Lighting's NGN 1.51 billion mini-grid bond safe enough

for local pension and insurance funds to buy. In the Philippines, six domestic banks came together on a USD 2.4 billion, 15-year loan for Terra Solar's 3.5 GW of solar and 4.5 GWh of storage.

South-South capital is the second frontier. Gulf countries invested more than USD 100 billion across Africa between 2012 and 2022. Saudi Arabia's ACWA Power has launched projects worth around USD 3 billion in Uzbekistan as part of a wider USD 10 billion programme. Infinity Power, an Egyptian–Emirati venture, operates 1.3 GW of capacity across Africa and has around 3 GW under development. These investors bring more than capital. They understand currency risks, utility reforms and the practical challenges of delivering projects in similar markets. They also bring business models, such as pay-as-you-go solar, that have already worked in comparable economies.

Small-Scale Solar Investment rose 9% to **USD 245 Billion** while **Global Solar Investment** fell 12%:

Distributed solar's growing role in the energy transition will continue to expand, especially in the lower-tier segments.

In 2025, small-scale solar attracted **USD 245 billion, up by 9% from USD 225 billion in 2024**, becoming the largest solar investment segment for the first time. Its role is particularly important in countries in the potential tier, where electricity access averages only 66.4%. **The EoDS 2026 SOLARISE Matrix identifies nearly 60% of deployable applications as small-scale. Of the 13 applications ready to scale today, 10 are small-scale, making them the immediate priority for scaled deployment.**

Mini-grids, solar pumps and pay-as-you-go systems can bring electricity to households, farmers and small businesses without waiting for grid expansion. For instance, Rwanda increased household electricity access from 10% in 2010 to 72% in 2024, with around one-quarter of this access

coming from off-grid solar. India had similarly solarised **2.92 million agricultural pumps under PM-KUSUM by September 2026.**

Technology is therefore no longer the main barrier. The larger challenge is affordable finance that supports the small scale, local revenues and customer repayment patterns of distributed systems. Local-currency instalments, suitable loan tenors and targeted risk-sharing mechanisms can help turn local demand into investable projects.

Distributed solar should therefore be seen not as a temporary solution until the grid arrives, but as a scalable pathway to electrification. Its next phase will depend less on proving the technology and more on building financing models that can electrify and energize households, farms and businesses at scale.



Storage is Moving from a ‘Good-To-Have’ to a ‘Must-Have’ for making Solar Power Productive:

With about 20% of SOLARISE applications requiring storage and a ~360-fold disparity in storage capacity between Achiever (4.3 GW) and Potential (12 MW) tier countries, storage and grid infrastructure investments must be planned alongside solar deployment to avoid curtailment, unlock investment and support round-the-clock clean power.

As solar penetration increases, storage is becoming critical to match generation with demand. While 75% of the applications in the SOLARISE Matrix are deployable today, the next 16 applications classified under Categories O and L, including evening supply, round-the-clock industrial power and island microgrids, depend on storage solutions to become viable at scale.

Storage capacity, however, is concentrated in more advanced markets. Median energy storage capacity is approximately 4.3 GW in Achiever countries, compared with 12 MW in Potential countries. The roughly 360-fold difference in median energy-storage capacity spans both operational assets and projects under construction or planned, indicating a substantial divide in existing infrastructure

and future development. Grid constraints are also becoming material: Botswana loses about 21% of power in transmission and distribution, while curtailment and congestion reduced renewable energy investment in Brazil by 22% in 2025. Meanwhile, globally, solar-plus-storage investment reached a record **USD 17.2 billion in 2025.**

Storage and grids therefore need to be planned with solar, not after it. Transmission typically takes 4–5 years to build, compared with around 2 years for solar. Planning storage and transmission alongside the solar pipeline, while creating mechanisms that value firm capacity and reliability, can enable both grid stability and higher-value uses of solar power.



The Transition that Matters is from Energy Dependence to Energy Sovereignty:

The Energy Transition Pathways demonstrate that countries with stronger economic fundamentals are accelerating solar deployment to diversify away from imported energy, while countries with limited fiscal space can use distributed solar and storage to strengthen resilience and reduce external vulnerabilities.

The 2026 West Asia crisis highlighted how energy security and financial resilience are deeply interconnected. Countries with high import dependence and limited fiscal flexibility face a double burden: rising energy costs weaken currencies, making solar investments more expensive. Resilience therefore depends on import exposure, financial flexibility and the energy mix, as illustrated by the Energy Transition Pathways framework.

Country experiences underscore this contrast. For instance, Australia, with domestic resources and greater financial flexibility, saw wholesale prices fall **30% to USD 49/MWh during the crisis. Singapore, despite its financial strength, generates 94% of its power from imported gas and saw prices exceed USD 156/MWh.** Niger, with high import dependence and limited financial

room, saw national supply fall 30–50% when electricity imports from **Nigeria dropped from 80 MW to 46 MW.** Ethiopia is less import-dependent, but drought can reduce hydropower output by 20–25%, while solar remains only around 15 MW.

Energy sovereignty must therefore become a core economic-policy objective. Although pathways will differ by country context, all require expanding domestic renewable energy, particularly solar, alongside stronger local financing ecosystems. Achiever countries demonstrate this alignment, with higher shares of local-currency PPAs and solar-based procurement than other country tiers.

The transition that matters is not only from fossil fuels to solar, but from imported energy dependence to domestically financed and locally anchored energy systems.

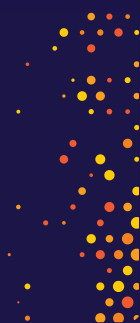
Conclusion

Solar's evolution is clear: generation was the priority yesterday, scale is the priority today, and storage is the priority next. Storage must therefore be positioned as the next frontier of solar deployment, while distributed solar and local capital are leveraged to accelerate the shift of solar growth towards Africa, LAC,

SIDS, and emerging markets. As solar adoption expands beyond traditional leaders and new demand sources such as data centres drive investment, global solar capital can become more evenly distributed, helping offset past investment imbalances and supporting a more equitable and resilient energy transition.



Overview of the Report Structure



ONE ARGUMENT, TOLD IN LAYERS

Ch 1 and 2	The premise — Why solar readiness and LCF are strategic imperatives
Ch 3 and 4	The diagnosis — Where countries stand and what's holding financing back
Ch 5 and 6	The stakes — Why investment flows and energy security demand urgency
Ch 7	The path — How stakeholders unlock solar and DRE at scale

Overview of the Report Structure: One Argument, Told in Layers

EoDS 2026 MAKES ONE ARGUMENT

Across much of the Global South, solar is held back less by sunshine, technology or political will than by the cost of capital and the currency in which it is borrowed.

LCF and DRE

Cross-cutting financing and deployment pathway.



LCF considerations are embedded across the assessment, and the analysis draws on indicators covering mini-grid frameworks, off-grid affordability, installed off-grid capacity and energy access.

The premise – Context and framework

Why solar readiness and LCF are strategic imperatives

CHAPTERS 1 AND 2

- 1 **Introduction**
Sets out the premise: why the question has become urgent
- 2 **Primer on EoDS 2026 Framework**
Establishes the analytical instrument used to answer it

The diagnosis

Where countries stand and what's holding financing back

CHAPTERS 3 AND 4

- 3 **Overview of Results**
Delivers the core classification: four ISA-wide tiers and a regional classification
- 4 **Local Currency Financing**
Translates the readiness classification into a financing diagnosis

The stakes

Why investment flows and energy security demand urgency

CHAPTERS 5 AND 6

- 5 **Solar Investment Landscape**
Provides the market evidence behind the readiness assessment
- 6 **Energy Security and Transition Pathways**
Shows what is at risk if that investment does not materialize

The path

How stakeholders unlock solar and DRE at scale

CHAPTER 7

- 7 **Call to Action – Way Forward**
Converts diagnosis and evidence into action, introducing the SOLARISE Matrix

The chapters are best read not as separate analyses but as four movements of one narrative: the premise, the diagnosis, the stakes, and the path.

Since its pilot in 2019, Ease of Doing Solar (EoDS) has evolved from a benchmarking exercise into a genuine diagnostic tool, one that has grown in both reach and depth with each edition, moving progressively from measuring readiness to identifying the specific reforms needed to unlock scale. EoDS 2026 continues the evolution, but with a sharper focus than before.

EoDS 2026 is not a compendium of standalone analysis. It makes one argument: across much of the Global South, solar is held back less by sunshine, technology or political will than by the cost of capital and the currency in which it is borrowed. Solar projects earn revenues in local currency yet are often financed in dollars or euros. This mismatch raises project costs, reduces net returns, shifts risk to developers and off-takers, and reduces demand for local currency financing, thereby weakening domestic financial markets and their capacity to support long-term investment.

For Least Developed Countries (LDCs) and Small Island Developing States (SIDS), the challenge is even sharper. The cost of external financing is often higher due to perceived sovereign and currency risks, making debt more expensive even when project fundamentals are strong. Local currency financing (LCF) is therefore central to reducing risk, improving affordability and making solar deployment more financially viable and scalable.

Alongside LCF as the report's financing lens, EoDS 2026 elevates DRE as a priority deployment pathway. DRE applications — including solar-powered off-grid mini-grids, rooftop systems, water pumps and other productive use systems serving livelihoods, healthcare and education — expand energy access, build resilience and anchor local economic activity precisely in the markets that centralized deployment reaches last.

This edition therefore examines LCF as the critical financial enabler of solar deployment, with particular attention to its relevance for DRE. Because these themes run through the entire report, the chapters are best read not as separate analyses but as four movements of one narrative: the premise, the diagnosis, the stakes, and the path.

The premise – Context and framework

Chapter 1 sets out the premise: why the question has become urgent. The West Asia crisis in early 2026 exposed how quickly fuel dependence can affect prices, currencies, and public finances. It shows why clean energy is increasingly a resilience and energy-security priority, not only a climate choice.

Chapter 2 then explains the EoDS 2026 framework: evidence-based diagnostics, translated into insights and into a decision-making interface for stakeholders. It also explains the methodological shift in this edition: LCF considerations are embedded across the assessment rather than treated separately. The assessment also draws on indicators covering mini-grid frameworks, off-grid affordability, installed off-grid capacity and energy access that reflect the conditions influencing DRE deployment. Together, Chapters 1 and 2 establish the question the report asks, and the analytical instrument used to answer it.

The diagnosis – EoDS Outcomes

Chapter 3 delivers the core classification. It positions 127 ISA Member Countries across four ISA-wide tiers: **Achiever** – most favourable policy, technical, commercial and investment conditions for solar; **Influencer** – moderately strong and evolving ecosystem with growing solar attractiveness; **Progressive** – early-stage development of a favourable commercial investment ecosystem and **Potential** – nascent enabling conditions with foundational ecosystem-building underway. This is complemented, in this edition, by a regional classification that accounts for differences in regional conditions and enables more meaningful comparison among countries facing broadly similar circumstances. The regional classification provides an additional, context-sensitive lens alongside the global classification, allowing countries to be assessed both across the ISA-wide assessment and within their own regional peer group.

Chapter 4 translates the readiness classification into a financing diagnosis by examining the currency mismatch at the heart of solar finance. The chapter explains why local currency financing matters, compares financing conditions across developed, developing and least developed countries, and assesses the 16 Country Partnership Framework/Country Partnership Strategy (CPF/CPS) countries through an LCF readiness lens. It then moves from diagnosis to practical examples through case studies covering **DRE applications** including solar irrigation alongside battery storage solutions. These case studies demonstrate how local currency financing, payment-aligned revenue models, portfolio aggregation, risk-sharing mechanisms, contracted revenues, enabling regulations and domestic capital mobilization can improve the bankability and scalability of DRE, energy access and other solar deployment pathways.

The analysis demonstrates that scaling DRE depends not only on the availability of technology or capital, but also on whether financing structures reflect project size, the currency and predictability of revenues, customer affordability and the risks assumed by lenders and investors. The report therefore moves beyond assessing current readiness to identify the changes needed to unlock scale.

The stakes – Solar Investment Landscape and Energy Transition Pathways

Chapters 5 and 6 explain why the diagnosis matters now.

Chapter 5 follows the investment flows through 2025 and shows that solar investment remains concentrated in the most investment-ready markets, while many countries with strong solar potential still face limited access to affordable finance. It also highlights the growing importance of small-scale solar investment within the wider solar investment landscape. This provides the market evidence behind the readiness assessment.

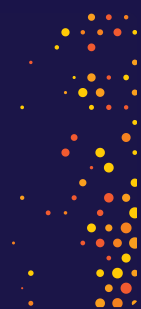
Chapter 6 then explains the energy-security consequences of delayed investment. While readiness scores show how prepared a country is to attract and deploy solar investment, the energy-security dimension shows what is at risk if that investment does not materialize. This is where financing and energy security become closely connected: fossil fuel import dependence puts pressure on foreign exchange reserves, currency depreciation raises the cost of hard-currency borrowing, and higher financing costs can delay the solar investment needed to strengthen long-term resilience.

The path – Unlock DRE at scale

Chapter 7 converts diagnosis and evidence into action. It sets out clear calls to action for governments, local banks and institutional investors, development finance institutions and ISA, showing what each actor must do to make solar investment, including DRE applications, more bankable, locally financed and scalable. The chapter also highlights how targeted support for mini-grids, solar irrigation, productive-use energy systems, and other DRE solutions can accelerate energy access, strengthen resilience and expand solar deployment in underserved markets.

EoDS 2026 introduces the SOLARISE Matrix, a decision-support framework that helps assess the readiness of different solar deployment opportunities and highlights areas requiring further enabling action. The Matrix covers a curated set of solar-powered and solar-enabled applications, including end-use applications, deployment formats, supply configurations and procurement-linked models, recognizing that each may have a distinct deployment pathway and level of feasibility even when based on the same underlying solar technology.

The report moves from evidence-based diagnostics to insights and decision support. The LCF lens explains how solar investment can become more affordable and locally anchored, while the analysis of DRE applications demonstrates how appropriate financing and enabling conditions can support deployment in underserved markets.



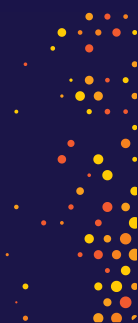




01

Introduction

CHAPTER 1



IN THIS CHAPTER

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1.3	EoDS 2026: The local currency financing imperative	31

Energy has always shaped how nations grow and how people live, but the past few years have made one thing unmistakably clear: access to secure, affordable energy is no longer just an economic advantage; it is a matter of resilience. For a long time, the global narrative around energy transition was one of optimism. Solar power became more cost-effective than ever, investments surged, and capacity expanded at record speed. Yet beneath this progress, reality remained uneven. Most new solar installations were concentrated in a handful of countries, while many sun-rich regions struggled to access capital, technology, and stable financing. Across the 127 countries assessed, average irradiation is lower in the tier that attracts 92% of investment (4.3 kWh/m²/day) than in the Progressive tier (5.5 kWh/m²/day), which attracts under 2%. Investment concentrates in markets whose advantage lies not in sunshine, but in the depth of their financial systems and the lower country risk as perceived by investors. Sovereign creditworthiness and macroeconomic stability also shape lending and investment decisions.

The solar gap is no longer about potential; it is about who can afford to act on it.

The implications of this gap became impossible to ignore in early 2026, when escalating conflict across the Gulf region disrupted global energy markets and threatened one of the world's most critical energy corridors, the Strait of Hormuz. The resulting surge in oil prices sent shockwaves across fuel-importing economies, driving up energy costs, fuelling inflation, and placing additional strain on already constrained public finances. For many countries, the crisis was a stark reminder that dependence on imported fossil fuels leaves economies exposed to risks far beyond their control.

In contrast, nations with growing domestic renewable energy capacity were better positioned to shield themselves from these disruptions, as sunlight could not be embargoed, disrupted, or priced by global commodity markets. The crisis therefore reinforced the strategic importance of clean energy, not only as a climate solution but as a means of strengthening energy security, reducing exposure to external shocks, and improving long-term economic resilience. Yet for many countries, the ability to make this transition remained constrained by limited access to affordable capital. The countries most vulnerable to volatile fossil-fuel markets were often the same countries facing the greatest barriers to financing the clean energy investments needed to reduce that dependence.

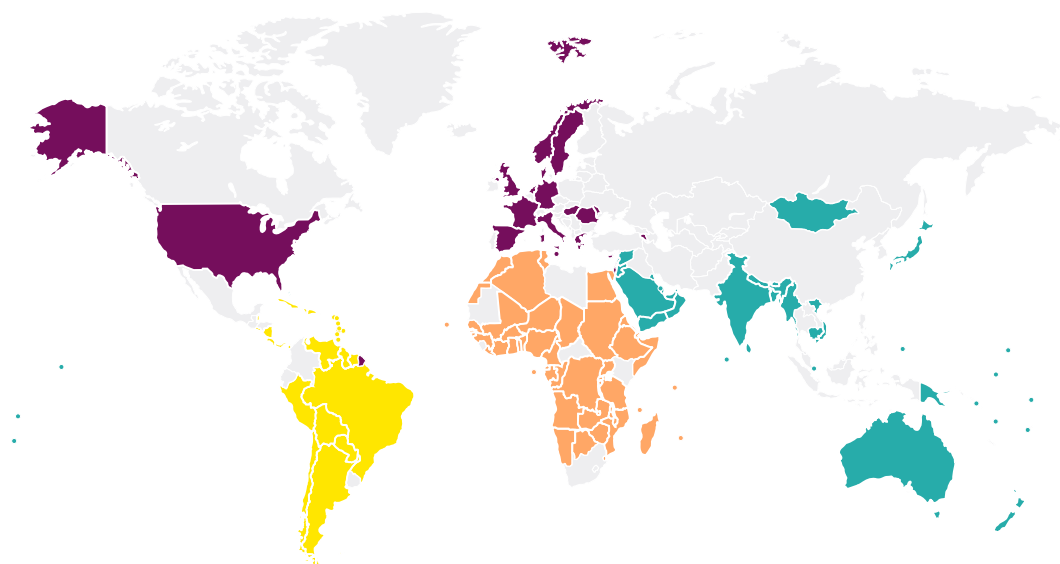
For fuel-importing countries, domestic solar can reduce pressure on the balance of payments.

As clean energy has moved from being optional to essential, the need for reliable renewable power has come into sharper focus and battery storage has proven to be a critical piece of the puzzle. By storing excess solar power and delivering it when needed, batteries overcome the intermittency of solar generation, transforming it into a dependable and dispatchable energy source. Paired together, solar and storage provide greater resilience to fuel price volatility and supply disruptions. However, scaling these solutions remains challenging due to financing constraints, currency risks, and infrastructure gaps. Addressing these barriers will require coordinated global action, with the ISA playing a crucial role in mobilizing capital, policy support, and technology to strengthen long-term energy security.

1.1 International Solar Alliance (ISA): Driving the solar agenda

The International Solar Alliance (ISA) was founded on the idea that countries with sunshine should not be held back by a lack of access to resources. Launched in 2015 by India and France at the Paris Climate Conference, ISA has since grown into a platform of 127+ Member and Signatory Countries¹ across Asia-Pacific, Africa, Latin America and the Caribbean, Europe and the Others. What makes ISA unique is not just its scale, but its purpose: to turn solar energy into a practical, affordable solution for everyday needs, from powering farms and clinics to strengthening transport and electricity systems. At its core, ISA is about helping countries move from 'Ambition to Action', ensuring that clean energy is not a privilege, but something communities everywhere can rely on.²

Figure 1 - Geographic spread of ISA Member and Signatory Countries



Note: Map not to scale.

■ Africa (47)
 ■ Asia-Pacific (35)
 ■ Latin America & the Caribbean (26)
 ■ Europe & the Others (19)

Dots mark ISA Member Countries too small to show at this scale.

ISA's strength lies in how it connects people, ideas, and capital. By helping countries share what works, build common standards, and attract investment, it is steadily lowering the barriers that have slowed solar adoption, especially in developing regions. More than just an institution, ISA acts as a bridge, bringing governments, investors, and industries into the same conversation, and backing that dialogue with data, insights, and practical solutions. In a world where the pace of energy transition will define economic and social resilience, ISA's role is increasingly clear: to ensure that the shift to solar is not only faster, but also more inclusive.

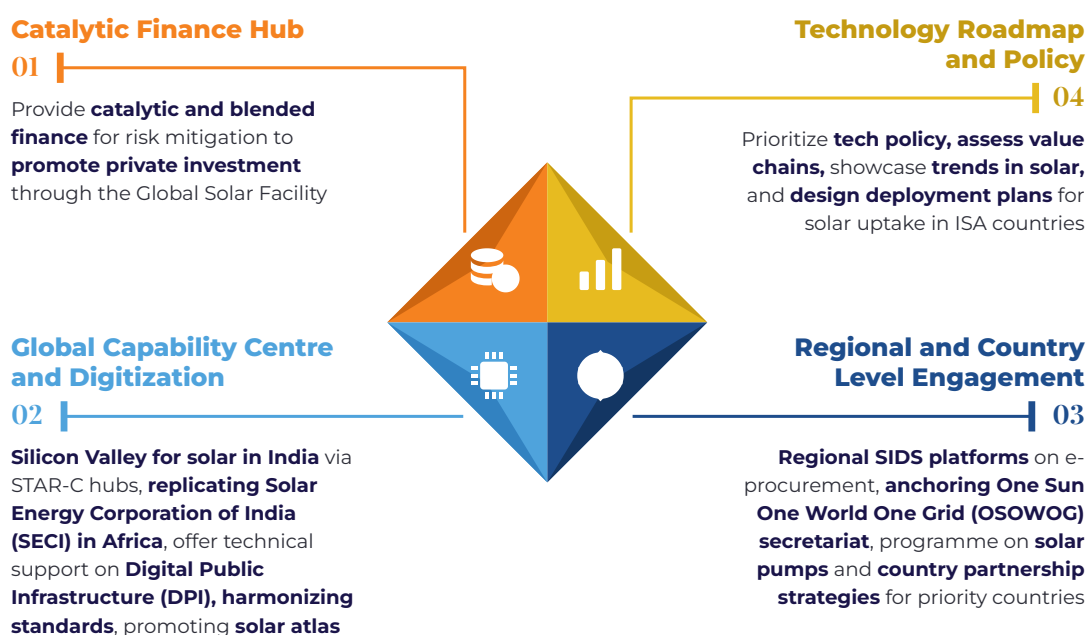
¹ "ISA Member Countries" refers to the 127 Member and Signatory Countries of the ISA as of June 2026. Unless otherwise specified, references to "ISA countries" or "member countries" should be interpreted accordingly.

² International Solar Alliance (2025), Framework Agreement and membership records, isa.int

As the role of solar energy expands in addressing energy access and security, the ISA is also evolving in its approach. What began as a platform to bring countries together around solar deployment is now becoming a more strategic force, shaping how solutions are designed and delivered for the countries that need them most. At the heart of this shift is ISA's renewed vision, which seeks to ensure that the perspectives of the Global South actively guide global clean energy efforts.

To translate this vision into action, ISA is strengthening its approach through these four strategic pillars, each addressing a core barrier that countries face in scaling solar. Together, they aim to make solar markets across the Global South more investable, more capable, and more connected.

Figure 2 - ISA's Four Strategic Pillars



Ease of Doing Solar (EoDS), an annual publication, serves as an important bridge between ISA's strategic pillars and country-level implementation, translating strategy into a structured, evidence-based diagnosis of where solar deployment is working, and where it is not. It directly supports ISA's **Regional and Country Level Engagement** and **Technology Roadmap and Policy** pillars. It also informs the **Catalytic Finance Hub** by helping identify investment barriers, de-risking needs, and bankable opportunities that can unlock greater private and public capital for solar deployment.



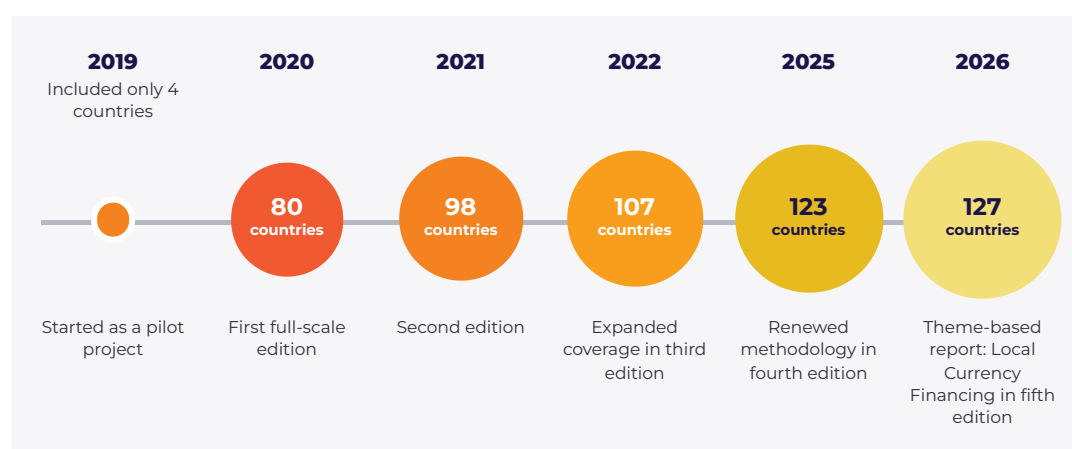
1.2 Ease of Doing Solar (EoDS) – A flagship analytical instrument

Translating ISA's vision into measurable progress requires more than institutional commitment; it demands a clear-eyed understanding of the conditions that either enable or obstruct solar deployment on the ground. Strong solar resource and political intent alone do not translate into installed projects. Investment flows when policy frameworks are predictable, financing structures are accessible and infrastructure can support scale. Identifying precisely where these conditions fall short, and what it would take to strengthen them, became central to ISA's work and the foundation on which its analytical agenda was built.

Countries planning their solar energy transition rarely lack ambition. What they often lack is a clear, evidence-based understanding of their current landscape, where policies and markets are functioning effectively, where bottlenecks persist, and what is required to translate investment intent into real-world deployment. **This is the gap the EoDS intends to fill. Developed as ISA's flagship analytical instrument, EoDS offers a structured, country-level assessment of the policy, financial, institutional, technological, and infrastructural conditions that either enable or hinder solar deployment at scale.** It does not just measure intent; it evaluates the real-world conditions that shape a country's solar ecosystem and determine how effectively solar opportunities can progress from ambition to deployment.

Launched as a four-country pilot in 2019, EoDS has evolved from a benchmarking exercise into a strategic diagnostic framework for solar market development. Beyond expanding its geographic coverage and analytical rigour, EoDS now identifies structural barriers to investment, prioritizes reform opportunities, and provides actionable insights to accelerate solar deployment. For investors, it highlights markets with stronger risk-adjusted opportunities; for policymakers, it serves as a roadmap for unlocking capital and enabling sustainable sector growth.

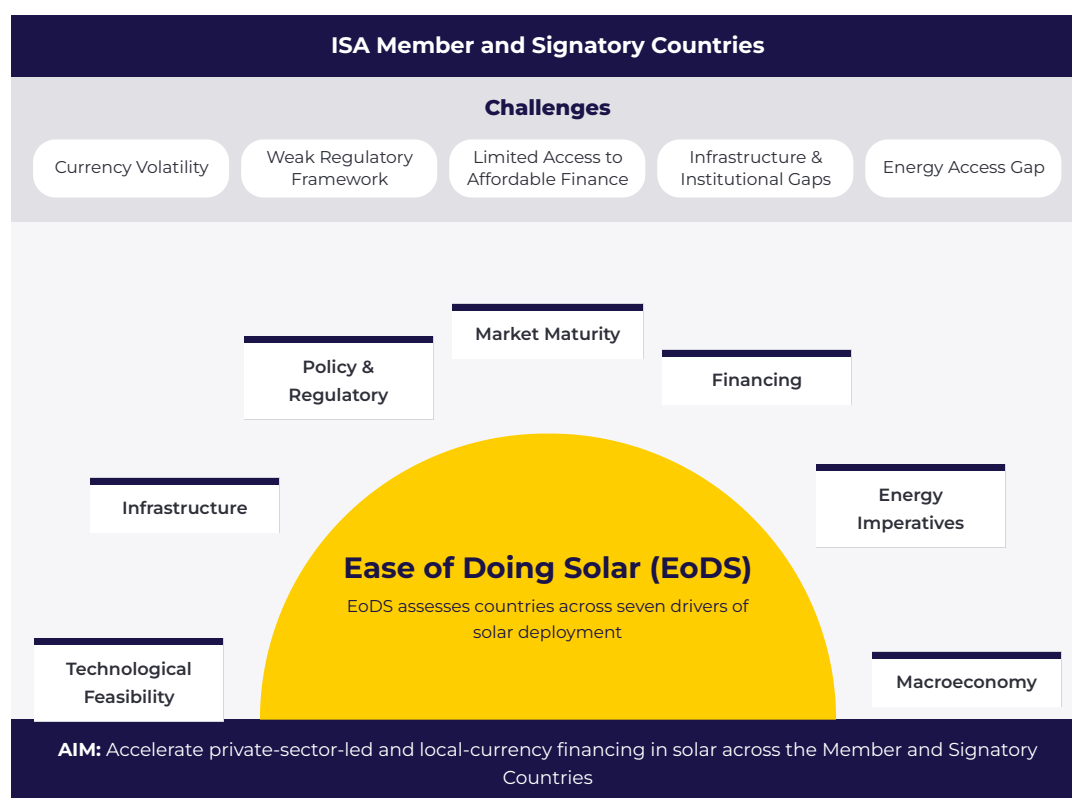
Figure 3 - EoDS Journey: From Pilot to Wider Reach



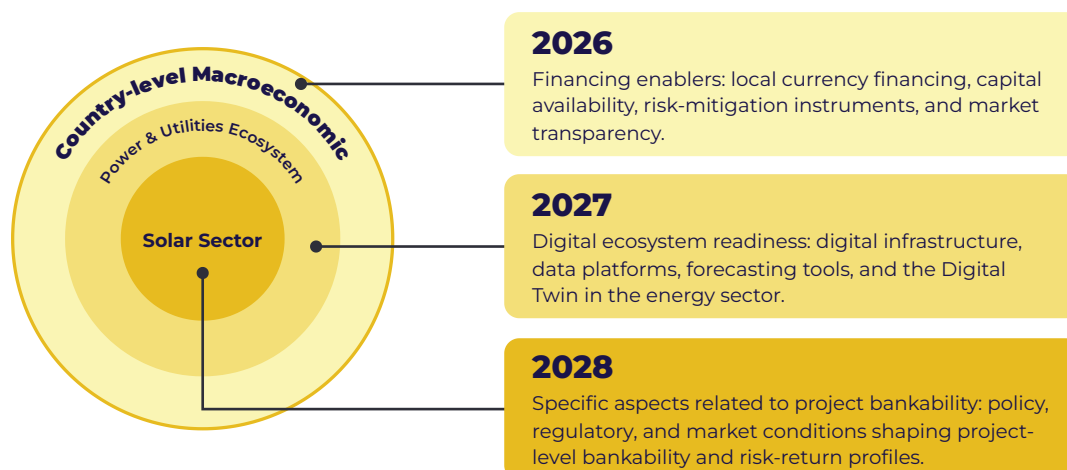
What makes EoDS particularly valuable is its recognition that solar deployment is not fundamentally a technology challenge, but an ecosystem challenge. While solar resources are abundant and national ambitions are increasingly clear, deployment outcomes ultimately depend on whether the enabling environment can translate intent into investment and investment into scale. Government and utility procurement creates the investable project opportunity through auctions, feed-in tariffs, public programmes or other transparent routes. Factors such as financing availability, regulatory predictability, grid readiness, currency stability, and institutional capacity then determine whether projects become bankable and replicable. EoDS provides a structured and evidence-based assessment of these enabling conditions, offering a transparent view of a country's preparedness to attract investment and accelerate solar growth.

As solar markets mature, the barriers to deployment are becoming more interconnected and nuanced. Reflecting this evolution, EoDS has entered a new phase with the adoption of a progressive thematic approach. This enhanced framework moves beyond assessing individual indicators in isolation and instead examines how critical ecosystem components interact to influence deployment outcomes. In doing so, EoDS has strengthened its role as a strategic decision-support tool, helping policymakers prioritize reforms, investors identify opportunities, and stakeholders align actions to accelerate the transition from solar ambition to solar implementation.

Figure 4 - EoDS Framework: From Challenges to Assessment



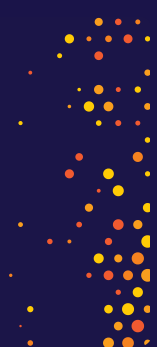
Having identified where these barriers sit today, EoDS is now evolving to track how they close over time. The progressive thematic roadmap (2026–2028) sets out how the assessment will deepen year on year, from financing enablers in 2026 to digital ecosystem readiness in 2027 and project bankability in 2028, ensuring the framework keeps pace with the sector's most pressing constraints.

Figure 5 - Progressive Thematic Roadmap (2026–2028)

The 2026 edition focuses on financing and, more specifically, LCF, while placing greater emphasis on DRE applications as an important pathway for expanding solar deployment. Challenges such as currency volatility, cost of capital, and access to domestic finance are not peripheral; they are central to investment decisions and long-term sustainability. Cost of capital warrants particular emphasis given solar's distinctive economics: with no fuel input and near-zero variable costs, virtually the entire cost of the electricity it produces is fixed at the moment of investment. When a technology's cost is dominated by upfront capital, the terms on which that capital is raised – its price, its currency and its tenor – become the single largest determinant of the final tariff.

This thematic progression is supported by a corresponding methodological evolution. While the core **EoDS framework remains intact, the relative weight of selected drivers has been recalibrated to better reflect the conditions that shape capital mobilization in real markets. The 2026 findings should therefore be read with this recalibration in view: changes in classification may reflect both country performance and analytical refinement.**

EoDS 2025 was built primarily around global classification of countries and the analysis that followed from it. EoDS 2026 marks a structural refresh, introducing a set of key enhancements and adopting a dedicated theme, local currency financing, designed to move the report from classification alone towards actionable, decision-ready guidance.



1.3 EoDS 2026: The local currency financing imperative

A country may have strong solar resources, rising electricity demand and ambitious targets, yet deployment begins only when a credible project or procurement pathway exists. For utility-scale solar, this usually starts with government or utility planning, followed by a transparent auction, tender, feed-in tariff or other procurement mechanism. Developers then seek finance, while lenders assess off-taker quality, contract terms, grid readiness, country risk and currency exposure. For DRE applications, bankability depends on demand, customer affordability, reliable payment collection, enabling regulations and the aggregation of smaller projects.

Finance becomes a binding constraint once these underlying project and revenue conditions are in place. Where projects earn revenue in local currency but borrow in dollars or euros, depreciation can undermine otherwise viable investments. This currency mismatch across utility-scale solar, DRE and storage underlines the need for LCF – the financing imperative at the centre of EoDS 2026, and where the real story of solar’s stalled progress begins.

The report looks beyond whether countries are ready to adopt solar and asks whether they can finance, sustain and scale it over time. It therefore moves from where countries stand today, to why progress continues to stall, and finally to what must change so that solar investment becomes bankable, locally financed and scalable.

The defining theme: local currency financing (LCF)

This year, the thematic lens is LCF and the choice is not incidental. Across much of the Global South, the central barrier to solar deployment is no longer technology, political will, or even policy design. It is capital and the ease of access to capital locally. The inability to finance solar projects in local currency quietly inflates the real cost of clean energy, exposes developers and off-takers to untenable risk, and pushes out the very domestic institutions best placed to sustain investment for the long term.

Why now?

In recent years, rising interest rates in advanced economies have made global capital more expensive and harder to access, particularly for emerging market solar projects that rely on dollar- or euro-denominated financing. At the same time, currency fluctuations across many Global South countries have made it increasingly difficult for project revenues, often earned in local currency, to keep pace with financing obligations in foreign currencies. This growing mismatch has not only slowed new investments but has also increased financial pressure on existing projects.

As ISA Member Countries move from pilot projects to large-scale solar deployment, access to affordable financing has become the defining factor in determining how quickly solar ambitions can be translated into reality. This is why LCF sits at the heart of EoDS 2026. For many countries, the challenge is no longer a lack of solar potential or policy ambition, but securing the right kind of capital needed to turn that potential into projects on the ground.

In this report, LCF refers to debt, equity and guarantee-backed instruments that are raised and repaid in the currency in which a project earns its revenues. For low- and middle-income countries, expanding access to such financing depends on two key factors. The first is access to domestic capital, through stronger local banks, pension funds, insurers, and capital markets that can provide long-term financing for solar projects. The second is the management of foreign exchange (FX) risk. Where foreign capital remains necessary, currency risk must be hedged or shared so that exchange-rate movements do not undermine project viability. In essence, the first relates to the availability of capital, while the second concerns who bears FX risk and at what cost. Both dimensions are examined in Chapter 4.

By embedding LCF indicators across all seven drivers, EoDS 2026 does not simply measure whether a country can attract solar investment – it asks whether that investment can be structured, sustained, and scaled in a way that is resilient to external currency shocks and accessible to domestic capital markets.

The question for this edition is therefore narrower than ‘who is ready for solar’. It is: what sets the price of solar capital in each market, and what would lower it.

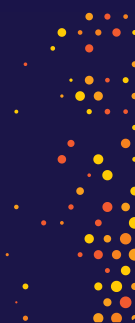






CHAPTER 2

02 Primer on EoDS 2026 Framework

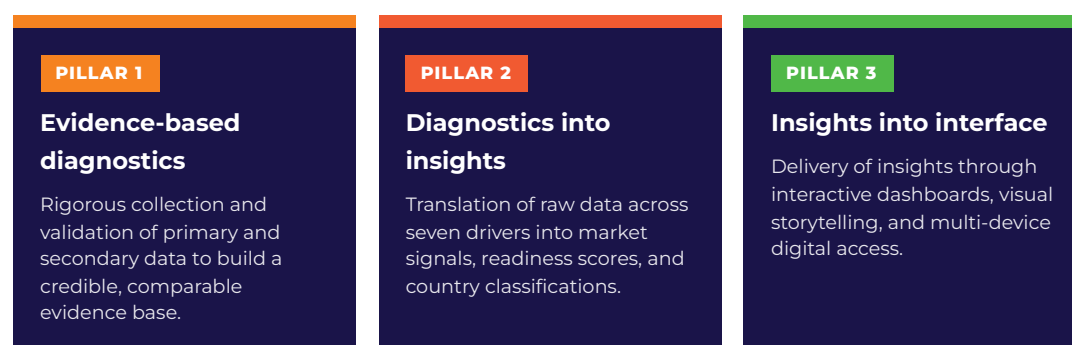


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EoDS 2026 rests on three interlocking pillars. Together, they transform raw country data into a comparative, actionable diagnosis of where solar investment can flow, and where it keeps stalling.

Figure 6 - The EoDS blueprint: A three-pillar framework



2.1 Pillar 1: Evidence-based diagnostics

The first pillar forms the analytical bedrock of the EoDS framework. Its purpose is to ensure that every classification and market signal produced by the model rests on a foundation that is rigorous, independently verifiable, and comparable across all ISA Member Countries. At its core, this pillar is not simply a data-collection exercise; it is the mechanism through which the complexity of each country's solar ecosystem is translated into a structured, decision-ready evidence base that can meaningfully inform the choices of governments, financiers, and development institutions alike.

Seven analytical drivers – Macroeconomy, Policy Enablers, Technological Feasibility, Market Maturity, Infrastructure, Financing and Energy Imperatives – form the structural backbone of the assessment.

Evidence alone, however, does not create insight. The assessment also makes an explicit judgment on **relative importance**: which drivers matter most in today's solar deployment context. The weightages were reviewed for balance across the framework and tested to ensure that no single driver disproportionately determines country classification.

Table 1 - Seven analytical drivers and weightages*

Macroeconomy	Financing	Policy Enablers	Technological Feasibility	Energy Imperatives	Market Maturity	Infrastructure
17%	20%	15%	14%	14%	10%	10%

**The weightages have been determined through consultations with a range of expert stakeholders, including policymakers, financial institutions, development partners, and industry experts, to ensure they are grounded in practical market realities.*

Reflecting the theme in weightages

Given that LCF is a central theme of EoDS 2026, the model assigns the highest weight to Financing and Macroeconomy. This reflects the reality that the ability to mobilize capital in local currency depends not only on the availability of financing instruments and financial-market depth, but also on broader macroeconomic conditions such as currency stability, inflation, sovereign risk and the cost of capital. Countries may possess strong solar resources and supportive policies, but sustained solar deployment remains difficult where financing conditions are weak or macroeconomic risks are elevated.

Therefore, EoDS 2026 reflects the critical importance of mobilizing domestic capital, managing currency risk, and strengthening local financial systems in determining market readiness, while ensuring other drivers complement, rather than substitute for, these core enabling conditions. The assessment therefore considers the combined performance across all drivers rather than any single driver in isolation.

Evidence collection: Dual-track methodology

The evidence base underpinning Pillar 1 is assembled through a dual-track methodology that combines direct country engagement with the rigour of authoritative secondary data.



Primary data

is collected via multilingual surveys (English, Spanish, French, Arabic) with active engagement of ISA's Regional Coordinators and the National Support Units (NSUs), ensuring inclusive participation and validated country inputs.



Secondary data

is compiled from ~50 global sources (e.g., World Bank, IMF, IRENA, IEA) and supplemented with targeted initiatives such as Mission 300 to enhance coverage and comparability.

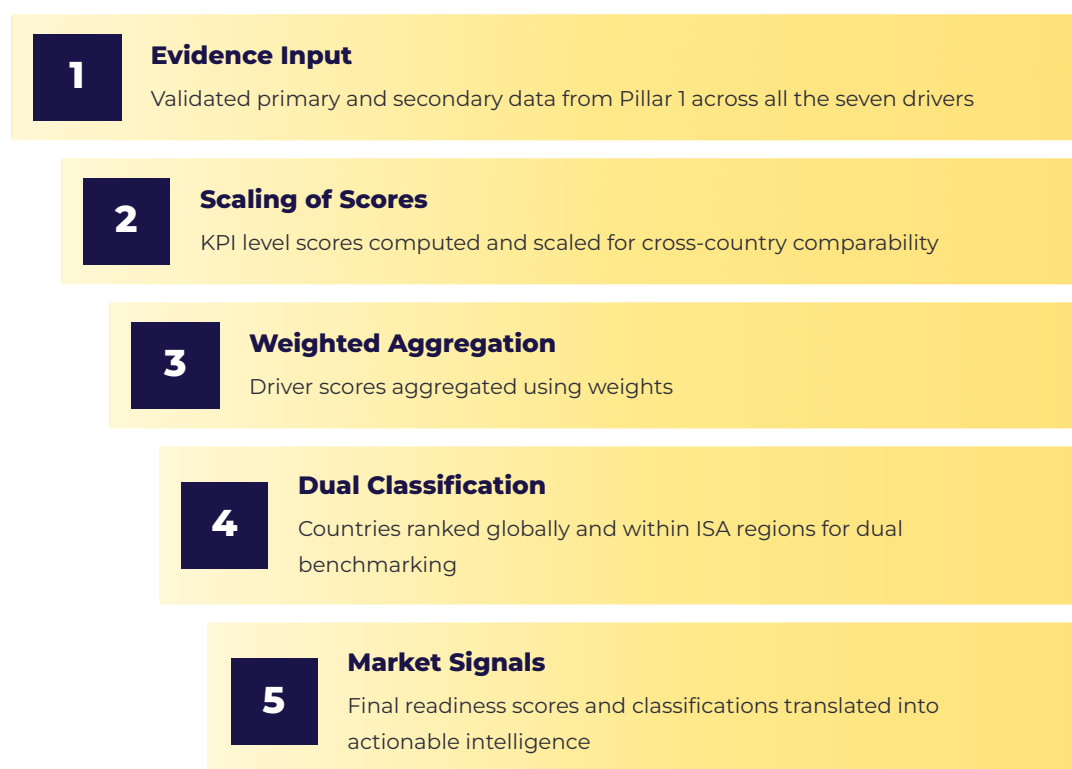
Together, these two streams feed into a triangulated, validated evidence base.



2.2 Pillar 2: Diagnostics into insights

If Pillar 1 is the foundation on which the model is built, Pillar 2 is the model's analytical engine: the layer where validated evidence is converted into scores, signals, and classifications that governments, investors and development institutions can act on. Pillar 2 unfolds through the following stepwise analytical process:

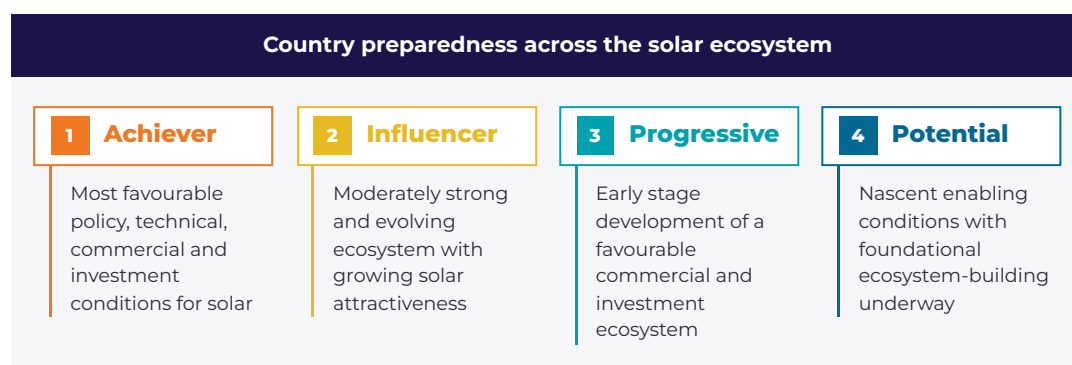
Figure 7 - Stepwise analytical process of EoDS 2026 assessment



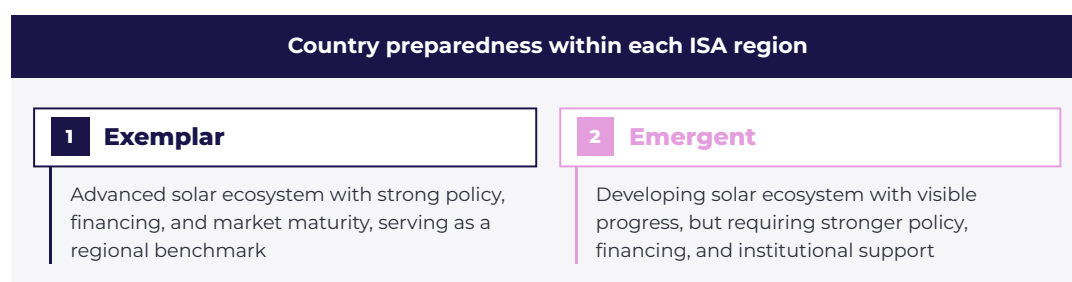
Global Comparability, Regional Relevance: A First-of-Its-Kind Dual Classification Framework for EoDS

EoDS 2026 positions every country through dual lenses: Global and Regional classification, offering a sharper and more contextual view of solar market readiness.

Global classification: All 127 ISA Member Countries are classified on a single global index giving investors a unified, cross-continental view of where capital is more efficiently deployed. Countries are placed into four tiers: Achiever, Influencer, Progressive and Potential, each representing a distinct stage of solar ecosystem maturity, not just a number on a leaderboard.

Figure 8 - Country preparedness across the solar ecosystem (global tiers)

Regional classification: Every country is also benchmarked with other countries within its ISA region: Africa, Asia-Pacific, LAC, and Europe and the Others, and classified as **Exemplar or Emergent**. This regional classification complements the global classification by assessing progress relative to stronger regional performers across the EoDS drivers. It reflects regional conditions and enables more meaningful peer comparison and learning. The regional classification applies the same seven drivers, KPIs and driver weightages as the global classification; no additional factor-level weightages are introduced. What changes is the reference point: each country's scores are compared with those of the stronger performers within its own region rather than with the global index.

Figure 9 - Country preparedness within each ISA region (regional tiers)**Table 2 - EoDS 2026: Two lenses, one framework**

Basis	Global classification	Regional classification
Scope	All ISA Member Countries classified on a single global index	Countries classified within their ISA region – Africa, Asia-Pacific, Latin America and the Caribbean, Europe and the Others
Purpose	Enables cross-continental benchmarking and investor comparisons	Surfaces localized strengths, weaknesses, and peer comparisons
Classification	● Achiever ● Influencer ● Progressive ● Potential	● Exemplar ● Emergent
Output	Global readiness score and tier classification	Regional readiness score and tier classification

Building on the global and regional classifications, the report examines the financing conditions that influence solar deployment across different country groups. It then applies a five-point LCF readiness framework to 16 CPF/CPS countries, using selected financing indicators and stronger regional performers as benchmarks to identify country-specific constraints and priority areas for improvement. Practical case studies show how financing barriers have been addressed through local-currency finance, risk-sharing, reliable offtake and domestic capital.

From there, the focus shifts to where solar investment is actually flowing. The solar investment landscape maps global and regional capital flows through 2025 and unpacks what has driven the shift in where that capital goes. Building on this, the energy security and transition pathways chapter looks beyond investment flows to ask a broader question across all 127 countries: how resilient, secure and future-ready each energy system truly is, and what structural position each country holds on its path to transition.

The report then closes with a Call to Action that turns analysis into a practical pathway for solar deployment. As a new structural element introduced in EoDS 2026, this section presents the **SOLARISE** Matrix, a decision-support framework that helps countries and stakeholders identify which solar applications can be scaled today, which require additional system integration or market conditions, and which should be evaluated later as technologies and markets mature.

The Matrix provides two complementary signals. The SOLARISE level indicates an application's current readiness and the principal barrier to wider adoption, while the primary system pathway identifies the arrangement most central to its practical operation beyond the solar generator itself. These pathways include direct daytime use, grid interface and evacuation, short-duration battery storage, thermal systems, long-duration balancing, hybrid renewable supply and hydrogen conversion.

The Matrix is a qualitative, macro-level guide based on multiple factors rather than a numerical score or ranking. Read alongside each country's energy-transition position, it provides a common reference point while recognizing that application suitability will vary with local resources, demand, tariffs, storage economics, financing conditions, land availability, policy support and offtake arrangements.

2.3 Pillar 3: Insights into interface

Pillar 3 converts insights into interactive, decision-ready dashboards, enabling clear visualization of country performance and trends. These dashboards ensure accessible, real-time outputs across platforms for informed decision-making.



Figure 10 - Snapshot of the EoDS Webpage on the ISA Website

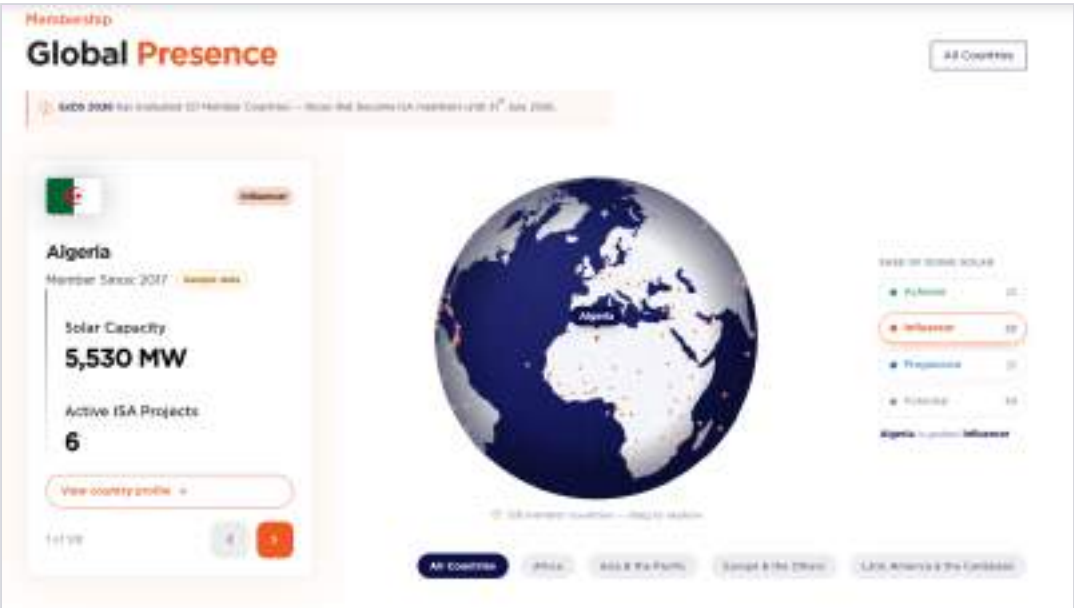


Figure 11 - Snapshot of EoDS dashboard



2.4 Interpreting the results: scope and analytical considerations

The EoDS 2026 framework provides a structured, comparable and decision-oriented view of solar readiness across ISA Member Countries³. It is designed to identify relative readiness, financing constraints and priority areas for further engagement. The results should therefore be read as a diagnostic assessment across the seven drivers, not as a substitute for country-level due diligence.

As with any cross-country assessment covering a large and diverse group of countries, the analysis is shaped by the availability, consistency and timing of data. For some indicators, the most recent data was not uniformly available across all the countries. To maintain comparability, the assessment used the latest available data where coverage was sufficient across the ISA Member Countries. This approach avoids excessive imputation or blank values, but it also means that some indicators may reflect different reference years depending on global data availability.

The assessment is anchored in the country questionnaire process and inputs received directly from ISA Member Countries. These responses were used as the primary basis for the relevant assessment areas. Where responses were incomplete or pending, additional follow-up was undertaken through regional and country-level engagement channels, and compiled inputs were shared with the respective countries for review or correction where required. Credible secondary sources were used selectively to support completeness, consistency and comparability across the full country set. This approach strengthens the primary-response basis of the report while ensuring that countries with limited or delayed submissions could still be included in the assessment.

While the assessment captures the major conditions that shape solar deployment, country-level realities may also be influenced by institutional, regulatory, market and project-specific factors that are not always visible in comparable cross-country datasets. The scores and classifications should therefore be read as relative readiness signals, helping identify broad patterns, strengths and gaps across countries rather than as absolute measures of performance. As additional primary inputs, updated data and market evidence become available, future editions may further refine country positions and deepen the assessment.

The local currency financing readiness assessment should also be interpreted as a directional diagnostic rather than a definitive measure of project-level financing capacity. For some KPIs, accurate ground-level data was not available in a consistent or comparable form across all countries. In such cases, proxy indicators were used to represent the closest available measure of the underlying financing condition. These proxies support comparative analysis, but may not fully capture informal financing channels, project-specific structures or institutional arrangements that exist within individual countries.

³ The assessment is based on data available as of 31 July 2026 and covers the 127 ISA Member Countries as of that date; countries joining thereafter were not included.

The Energy Security and Transition Pathways framework should also be interpreted as a directional analytical tool rather than a country ranking exercise. The framework maps countries across two structural dimensions, external energy resource dependency and economic status, and complements this with information on the dominant composition of the energy system. Its purpose is to provide context on the transition challenges and opportunities faced by different countries, recognizing that energy transition pathways will vary according to resource endowment, economic capacity and exposure to external energy markets.

The SOLARISE Matrix should be read in a similar spirit. It is a decision-support framework that helps stakeholders understand which solar applications may be more immediately deployable globally, which require additional system integration or market conditions, and which may remain longer-term opportunities. It is not a site-specific feasibility study, a fixed technology ranking, or a conclusive view on economic viability. Application placement is based on broad technical maturity and macro-level deployment practicality, and may vary by country depending on solar resource, tariffs, diesel prices, storage costs, cost of capital, land availability, grid reliability, policy incentives, supply-chain conditions and offtake certainty.

Investment and financing analysis in the report should also be interpreted with appropriate caution. Investment flows are compiled from available market databases, public disclosures and credible secondary sources, but global investment reporting may vary by transaction visibility, disclosure practice, financing stage and currency conversion assumptions. Reported values are therefore intended to show broad patterns of capital allocation rather than provide an audited account of all solar investment activity.

The timing of country participation also affects the treatment of some countries. For example, where a country became an ISA Member Country after the primary survey cycle had substantially progressed, the analysis may rely more heavily on secondary sources. Such countries are included to preserve coverage and relevance, while recognizing that future survey cycles may allow deeper validation through primary inputs.

These limitations do not undermine the usefulness of the assessment; rather, they clarify how the findings should be interpreted. EoDS 2026 is most useful for identifying relative readiness, common constraints, financing gaps and priority areas for further engagement. Its findings should be complemented, where required, by updated national data, stakeholder consultations, regulatory review, detailed financial modelling and project-level feasibility studies before specific policy, procurement or investment decisions are taken.

A tier is a starting point for diagnosis, not a verdict. The driver profile behind it shows which condition to change first.



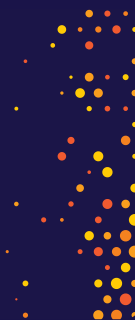




03

CHAPTER 3

Overview of Results



IN THIS CHAPTER

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3.1 Global classification

The application of the EoDS 2026 framework across ISA Member Countries provides a global classification of country readiness for solar deployment. Based on 90 key performance indicators (KPIs) across seven thematic drivers, countries are classified into four tiers that reflect differences in their enabling policy, market, financial, technological and infrastructure conditions. A separate, detailed assessment of local currency financing readiness is also presented in Chapter 4 (Section 4.3) for the 16 Country Partnership Framework (CPF) and Country Partnership Strategy (CPS) countries. The results highlight significant differences in solar readiness across ISA Member Countries. The four tiers are derived from a holistic assessment of countries across the seven EoDS drivers: Macroeconomy, Policy Enablers, Technological Feasibility, Market Maturity, Infrastructure, Financing and Energy Imperatives. Countries demonstrating stronger performance across these drivers tend to occupy the higher tiers, while those facing constraints across one or more drivers are typically classified in the lower tiers. The classification therefore is not simply a ranking; it is a diagnostic map of where the global solar investment ecosystem stands today.

The countries within each of the four tiers are listed below (in no specific order):

Table 3 - List of countries within each tier

Achiever (26)			
 Commonwealth of Australia	 Federal Republic of Germany	 Federative Republic of Brazil	 Grand Duchy of Luxembourg
 Hellenic Republic (Greece)	 Hungary	 Japan	 Kingdom of Denmark
 Kingdom of Norway	 Kingdom of Saudi Arabia	 Kingdom of Spain	 Kingdom of Sweden
 Kingdom of the Netherlands	 Republic of Chile	 Sultanate of Oman	 Republic of France
 Republic of India	 Republic of Italy	 Republic of Singapore	 Romania
 State of Israel	 State of Qatar	 United Arab Emirates	 United Kingdom of Great Britain and Northern Ireland
 United States of America	 New Zealand		
Influencer (25)			
 Arab Republic of Egypt	 Democratic Socialist Republic of Sri Lanka	 Dominican Republic	 Hashemite Kingdom of Jordan
 Kingdom of Morocco	 People's Democratic Republic of Algeria	 Kingdom of Bahrain	 Republic of Argentina

 Republic of Armenia	 Kingdom of Cambodia	 Jamaica	 Republic of El Salvador
 Republic of Namibia	 Republic of Malta	 Republic of Mauritius	 Saint Kitts and Nevis
 Saint Lucia	 Republic of Panama	 Republic of Cyprus	 Republic of Senegal
 Republic of Peru	 State of Kuwait	 Republic of Tunisia	 Republic of Zambia
 Socialist Republic of Viet Nam			

Progressive (26)

 Antigua and Barbuda	 Barbados	 Co-operative Republic of Guyana	 Grenada
 Republic of Palau	 Republic of Cabo Verde	 Republic of Cuba	 Kingdom of Bhutan
 Republic of Togo	 Commonwealth of Dominica	 Plurinational State of Bolivia	 Republic of Botswana
 Republic of Cote d'Ivoire	 Republic of Kiribati	 Republic of Lebanon	 People's Republic of Bangladesh
 Republic of Maldives	 Republic of Rwanda	 Mongolia	 Nepal
 Republic of the Marshall Islands	 Republic of Fiji	 Republic of Moldova	 Republic of Trinidad and Tobago
 United Republic of Tanzania	 Republic of Zimbabwe		

Potential (50)

 Belize	 Bolivarian Republic of Venezuela	 Burkina Faso	 Republic of Mozambique
 Democratic Republic of Sao Tome and Principe	 Democratic Republic of the Congo	 Federal Democratic Republic of Ethiopia	 Federal Republic of Somalia
 Gabonese Republic (Gabon)	 Independent State of Papua New Guinea	 Independent State of Samoa	 Federal Republic of Nigeria
 Kingdom of Tonga	 Kingdom of Eswatini	 Republic of Ghana	 Republic of Angola
 Republic of Benin	 Republic of Burundi	 Republic of Nauru	 Republic of Cameroon
 Republic of Chad	 Republic of Seychelles	 Republic of Djibouti	 Republic of Equatorial Guinea
 Republic of Guinea	 Republic of Guinea-Bissau	 Republic of Haiti	 Republic of Liberia
 Republic of Malawi	 Republic of Madagascar	 Republic of Mali	 Republic of Nicaragua

 Republic of The Gambia	 Republic of Paraguay	 Republic of South Sudan	 Republic of the Sudan
 Republic of Suriname	 Republic of the Congo	 Republic of the Niger	 Republic of the Union of Myanmar
 Republic of Uganda	 Republic of Vanuatu	 Republic of Yemen	 Tuvalu
 Republic of Costa Rica	 Saint Vincent and the Grenadines	 Solomon Islands	 State of Eritrea
 Union of the Comoros	 Syrian Arab Republic		

3.1.1 Tier-to-tier analysis

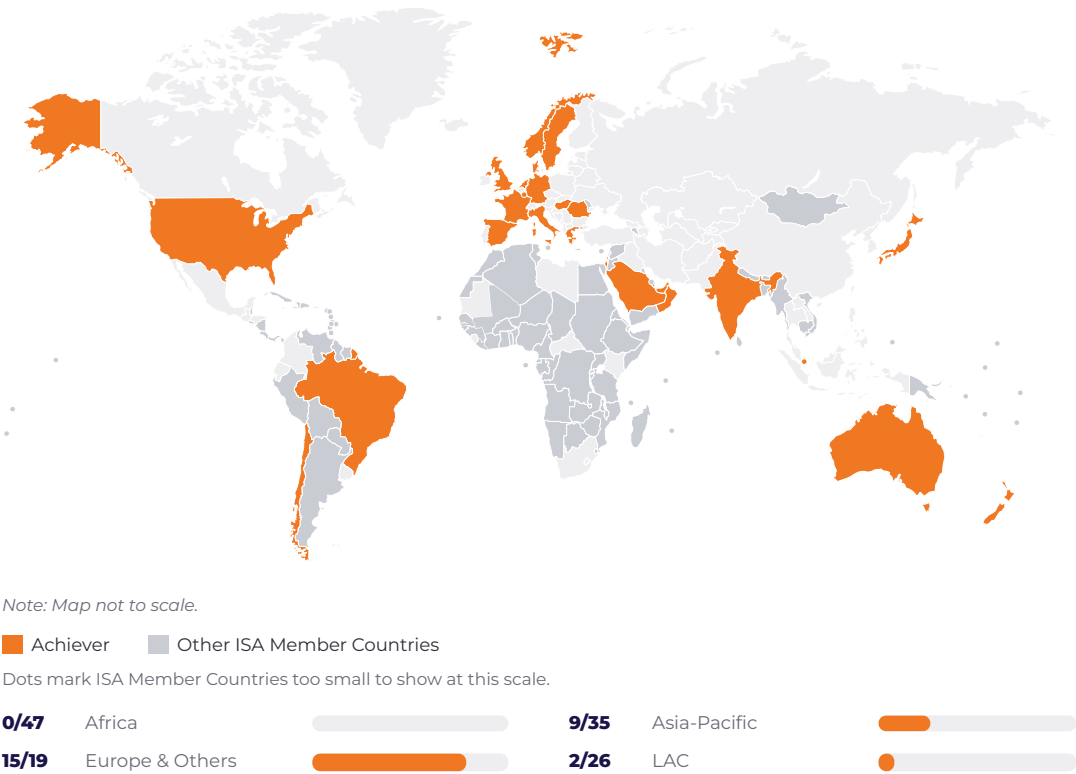
The distribution of countries across the four tiers reveals a pronounced imbalance in global solar readiness. In a relative classification model, a share of countries will inevitably fall into the lowest tier, but what is analytically significant is that the Potential tier is dominated by African countries. This concentration reflects a structural reality about the global solar landscape. The enabling conditions for effective solar investment remain out of reach for a large majority of the world's solar-resource-rich nations, particularly across Africa.

Achiever

These financially mature, low-risk countries combine macro stability with strong power-sector fundamentals: average policy rates of around 4%, domestic credit to private sector reaching ~80% of GDP, transmission and distribution losses averaging ~7%, and near-universal electricity access. All of them feature well-developed local financing ecosystems, including tailored solar financing products from domestic banks and established green finance instruments. Around 81% have standardized, bankable PPAs, and 81% execute contracts in local currency, effectively providing a full local currency financing stack.



Figure 12 - Achiever Tier: Country performance across EoDS drivers



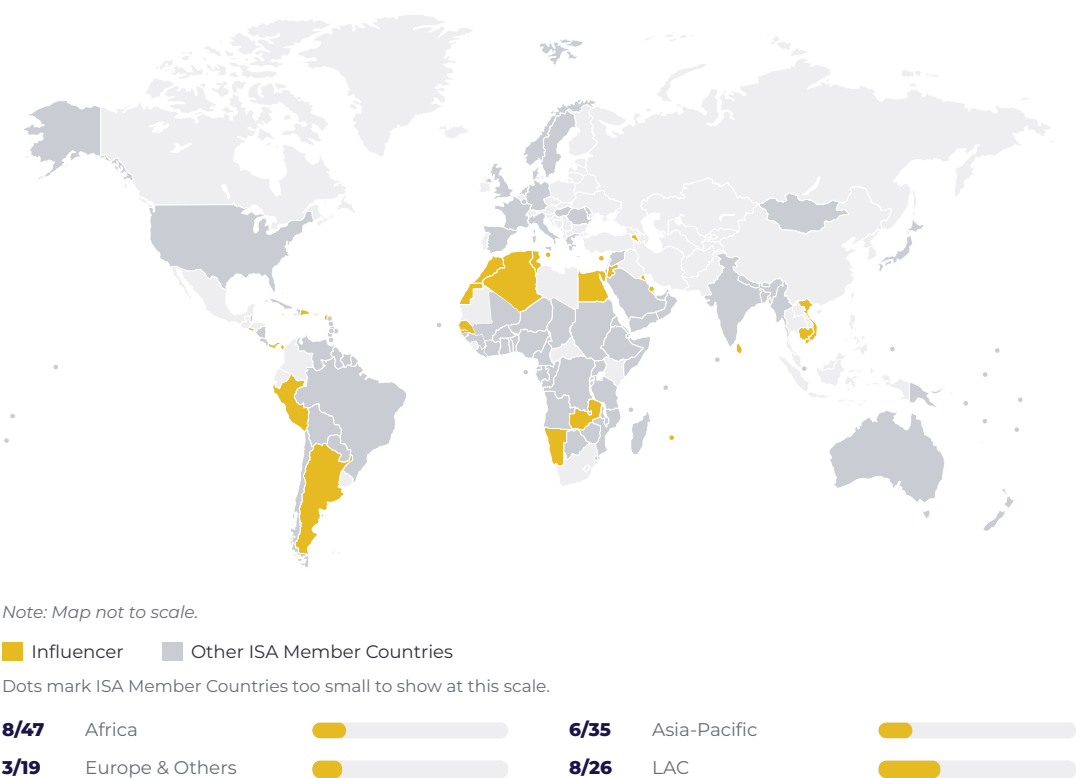
The key trade-off lies in fundamentals for solar deployment: these countries exhibit moderate solar resource (average GHI of 4.3 kWh/m²/day) and a maturing growth pipeline, with a median five-year solar CAGR of 27%. As a result, they are increasingly best positioned not only to absorb capital, but also to export capital, technical expertise, procurement standards, risk-mitigation tools and replicable market design to lower-tier countries.

Influencer

The Influencer tier represents the investable frontier, featuring countries such as Egypt, Morocco, Zambia, Mauritius, Argentina, among others. Financing ecosystems are taking shape, with 96% of Influencer countries offering tailored solar products through local banks and 64% supporting standardized, bankable PPAs, signalling that the foundational architecture for scaled investment is largely in place.

However, capital remains heavily reliant on foreign currency financing: the average cost of capital stands at around 13%, with only ~33% of PPAs denominated in local currency. Average currency depreciation over the past five years is around 22% in Egypt and 15% in Zambia, highlighting the underlying risk.

Figure 13 - Influencer Tier: Country performance across EoDS drivers

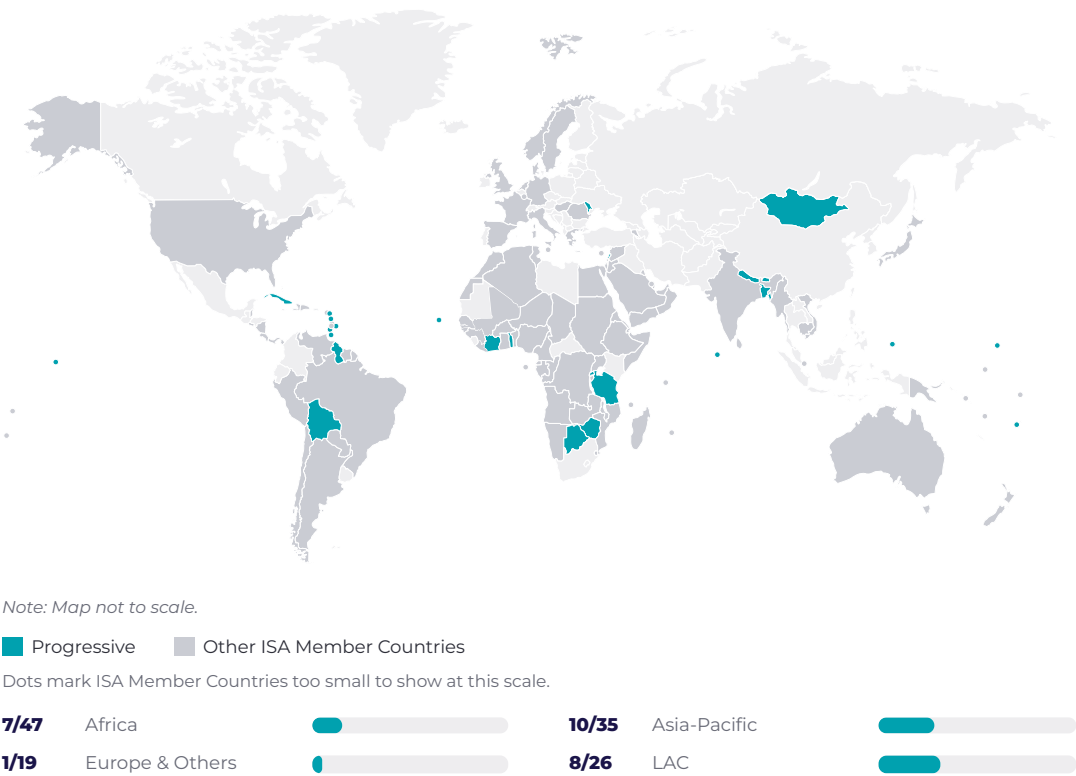


These countries have already built the contractual and financing frameworks that most markets lack. Translating that strength into local-currency execution is, in the report’s assessment, the most impactful step available to them, closing the gap not through new capital, but through how existing capital is structured and delivered.

Progressive

This tier is defined by strong resource fundamentals, but weaker financing capacity as compared to Achievers and Influencers: it enjoys some of the best solar conditions in the index (average GHI of 5.5 kWh/m²/day), and near-universal climate commitments yet records a low Financing score. About 81% of countries offer tailored products through local banks, 19% execute PPAs in local currency, and green bond issuance is virtually absent. This is the tier where natural advantage consistently outpaces institutional readiness: countries with some of the world’s strongest solar potential remain unable to convert that resource into investable, bankable pipelines.

Figure 14 - Progressive Tier: Country performance across EoDS drivers

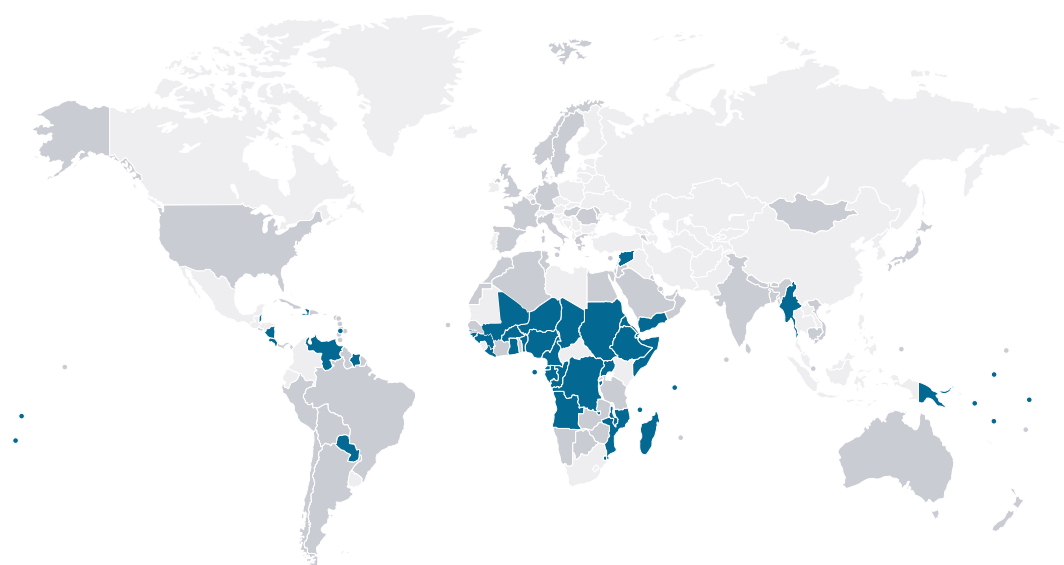


Namibia, classified one tier higher as an Influencer, stands out, achieving a 35% solar share of generation. This demonstrates how a single credible enabling environment can unlock significant progress, even within structurally constrained contexts.

The gap is structural, not resource driven. Unlocking the Progressive tier's full potential will depend less on improving solar conditions, which are already strong, and more on building the LCF architecture needed to convert resource abundance into bankable investment. Bhutan, which sits in this tier, illustrates a related caution: its solar capacity grew at close to 95% a year between 2019 and 2024, yet solar still contributes close to 0% of generation. Percentage growth from a small base signals momentum, not maturity; what converts one into the other is a repeatable pipeline of bankable projects and the grid capacity to integrate them.

Potential

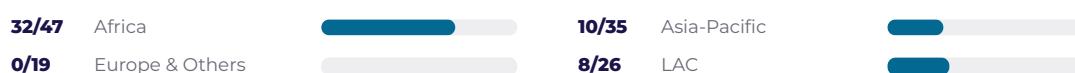
The largest cohort faces deep structural constraints. The constraints are structural and cumulative: average electrification is around 66%, transmission and distribution losses reach about 18%, policy rates average around 11%, and cost of capital is approximately 16%. Financing ecosystems are also thin: few countries in this tier report tailored solar products from local banks, and local-currency PPAs are in use in only around 4% of countries in the tier. Yet the demand signal remains strong because many of these countries have climate commitments and significant unmet energy needs.

Figure 15 - Potential Tier: Country performance across EoDS drivers

Note: Map not to scale.

■ Potential ■ Other ISA Member Countries

Dots mark ISA Member Countries too small to show at this scale.



Since the EoDS model is based on relative classification, the existence of a lower tier is expected; what matters is the concentration of that tier in countries with high energy-access needs and strong long-term solar relevance. This makes the Potential tier less a residual category and more a diagnostic signal of where the global solar investment ecosystem is least equipped to convert need and resources into bankable deployment.

Market activation will depend less on conventional private capital mobilization alone and more on sequenced interventions: concessional and blended finance, local-currency facilities, payment-security mechanisms, grid and utility strengthening, standardized procurement, and targeted technical assistance to move countries from latent demand to investable pipelines.

3.1.2 Driver-level insights

Following the tier-based analysis, where countries were grouped into Achiever, Influencer, Progressive, and Potential tiers based on overall performance, the focus now shifts to the underlying seven drivers of EoDS 2026. This section examines each driver individually, highlighting countries that perform strongly and those with opportunities for improvement across the drivers.

By moving from tier classification to driver-level insights, the analysis isolates where strengths and gaps are most pronounced, and which factors most strongly differentiate frontrunners from underperformers in enabling, scalable and locally financed solar markets.

Table 4 - Driver level analysis

Driver-level analysis
Macroeconomy Macroeconomic depth underpins local-currency lending. Achiever countries benefit from deep financial systems, with private sector credit nearing 80% of GDP, 4% policy rates, and stronger sovereign ratings. In contrast, Potential countries face a weaker base: credit depth falls to 33% of GDP, policy rates rise to 11%, and sovereign risk increases, making long-tenor solar financing more difficult and more expensive. The gap is not only about economic size, but about the credibility and depth of domestic systems. For weaker markets, the key shift lies in improving currency stability, strengthening domestic credit channels and building confidence in sovereign and financial institutions. These conditions do not change solar resource potential, but they determine whether that potential can translate into bankable deployment at scale. Denmark, Australia and Sweden emerge as the strongest performers under the driver.
Policy Enablers Ambition is widespread, but implementation remains uneven. Net-zero and NDC commitments exist in more than 92% of countries across all tiers, yet renewable-energy governance and competitive market conditions decline markedly from the Achiever to the Potential tier. This weakens investor confidence and increases policy and execution risks, which are reflected in higher financing costs. For lower-readiness markets, the policy challenge is to make the investment environment easier to trust. Clear auction design, transparent permitting, enforceable contracts, grid-access rules and consistent tariff treatment give developers and lenders visibility on how projects will move from approval to payment. Where these elements remain uncertain, investors either demand higher returns to compensate for the risk or delay investment until the rules become clearer. Policy enablers therefore matter because they turn national targets into investable conditions. Denmark, the United Kingdom, and Brazil emerge as the strongest performers under the driver.
Technological Feasibility Solar resource strength alone does not guarantee technological readiness. Countries such as Egypt (GHI: 6.3 kWh/m²/day; LCOE: ~USD 0.08/kWh) and Oman benefit from highly competitive solar resources, but technological feasibility also depends on grid readiness, integration capability, and technology adoption. Many lower-tier countries possess strong solar potential yet lack the capital needed to convert it into deployed capacity. The next stage of progress is therefore less about proving that solar can work and more about strengthening the infrastructure and integration conditions that allow solar to operate reliably, attract investment and support higher renewable penetration. Scaling solar-plus-storage can help unlock this potential by improving system reliability and investment attractiveness. Egypt, the United Arab Emirates and Saudi Arabia demonstrate the strongest enabling conditions under the driver.
Market Maturity The driver shows the sharpest relative divide across all drivers, with Achievers scoring 2.7x higher than the Potential tier. Power exchanges operate in 88% of Achiever countries but just 10% of Potential ones. For lower-readiness markets, where power markets remain thin, off-taker choices are limited and project revenues depend heavily on a small set of buyers, solar lending remains harder to scale. Strengthening market maturity means creating conditions where tariffs, contracts, buyers and project pipelines become more predictable, allowing banks and investors to treat solar as a repeatable asset class rather than a one-off transaction. Spain, Singapore and Brazil demonstrate the strongest readiness under the driver.

Infrastructure

The gap is visible across tiers: average T&D losses rise from around 7% in Achiever countries to nearly 18% in the Potential tier, indicating weaker grid performance and higher revenue leakage in lower-readiness markets.

For lower-readiness countries, the infrastructure challenge is not only technical, but financial. High losses weaken utility balance sheets, reduce payment certainty and make local-currency PPAs harder to finance. Progress therefore depends on strengthening grid operations, reducing losses, improving evacuation planning and building utility credibility. Without these foundations, even strong solar resources may struggle to translate into bankable, grid-connected deployment.

Germany, the Netherlands and the United States demonstrate the strongest readiness under the driver.

Financing

The decisive driver and the core of the 2026 theme is the cost and structure of capital. Utility-scale solar financing costs range from around 3% in the United Kingdom to nearly 20% in the highest-cost markets. In Achiever countries, green bonds account for around 70% of ESG issuance, while this share falls sharply below the Influencer tier.

For lower-readiness markets, the path forward lies in expanding local-currency lending, strengthening guarantees and credit enhancements, building domestic green finance instruments and mobilizing institutional capital into solar assets. These are the conditions that turn solar from a technically viable opportunity into a financeable investment pipeline.

The United Arab Emirates, Romania and the United States demonstrate the strongest readiness under the driver.

Energy Imperatives

Lower demand growth in the Potential tier masks a substantial unmet need for electricity. The Potential tier records a lower electricity demand growth (2.5% vs. 3.1% in Achievers) alongside the lowest electrification levels (66.4%).

For these markets, distributed renewable energy, mini-grids, solar irrigation, cold chains and other livelihood-linked applications can address demand gaps while building local markets for solar. However, these models depend heavily on affordable local-currency finance, concessional support, guarantees and payment structures aligned with customer income. Strengthening LCF conditions is therefore critical for turning energy need into deployable solar solutions.

Australia, Denmark and the Netherlands demonstrate the strongest readiness under the driver.





SPOTLIGHT

India across the seven drivers

India is one of the few large developing economies in the Achiever tier and an Exemplar within the Asia-Pacific region, and its position rests on breadth across the drivers rather than on a single strength. Under Policy Enablers, two decades of competitive auctions, standardized bidding guidelines, renewable purchase obligations and a clear target of 500 GW of non-fossil capacity by 2030 have given developers and lenders long-term visibility. Under Market Maturity and Infrastructure, about 132 GW of installed solar capacity, an expanding domestic manufacturing base and several financings above 1 GW in 2025 reflect the pipeline depth and delivery record of a mature market. Under Financing, solar investment reached a record USD 21 billion in 2025 within USD 28.6 billion of renewable energy investment, much of it raised through green bonds, and utility-scale financing costs of 8.5–11.5% are among the lowest in the developing world. Under Macroeconomy and Energy Imperatives, a stable macroeconomic position and rapidly growing electricity demand sustain the case for continued deployment. India's experience is therefore instructive for other developing ISA Member Countries: policy consistency and a credible, repeatable auction pipeline, rather than exceptional solar resource or exceptionally cheap capital, converted ambition into one of the world's largest solar markets.

3.2 Regional classification

For the first time, EoDS 2026 introduces a regional classification framework to complement the global assessment, enabling a more layered and context-sensitive analysis of country performance. This approach recognizes that structural differences across countries within the same region often shape outcomes in ways that are not fully captured through a global lens alone.

By incorporating regional perspectives, the framework provides more meaningful, like-for-like comparisons, allowing stakeholders to better identify localized strengths, constraints, and priority areas for improvement. This section offers a nuanced assessment of countries within their respective ISA regions, ensuring that performance is evaluated in the context of regional dynamics, market maturity, and development pathways.

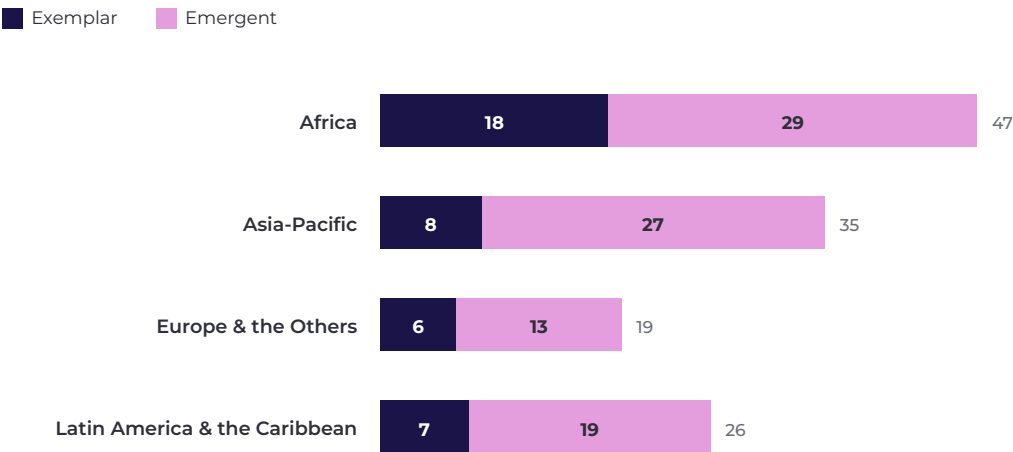
The most useful benchmark is a neighbour, not the world leader

Within each ISA region, countries are classified into two tiers: Exemplar and Emergent, to facilitate peer learning and enable more targeted interventions. This segmentation helps address the skewness inherent in global classification, where developed countries can disproportionately influence benchmarks. By anchoring comparisons within regions, the framework presents a more realistic and actionable view of performance, particularly for regions such as Africa and Asia-Pacific.

Exemplar countries are those that have an advanced solar ecosystem with strong policy, financing, and market maturity, serving as a regional benchmark. Emergent countries are those that have a developing solar ecosystem with visible progress but require stronger policy, financing and institutional support. The regional classification applies the same seven drivers, KPIs and driver weightages as the global classification. The key difference is the comparison group, as countries are assessed against their regional peers rather than against all the countries in the global classification.

Several African Exemplar countries fall within the global Potential and Progressive tiers, while some Emergent countries in Europe and the Others region rank among the global Achievers. This reflects the different purposes of the two classifications. The global tiers benchmark countries against all ISA Member Countries, while the regional tiers compare countries with peers facing similar structural conditions, providing a more relevant basis for peer learning and targeted action.

Figure 16 - Exemplars vs Emergents – Region Wise





3.2.1 Asia-Pacific

Countries in the Asia-Pacific region are classified into two tiers, Exemplar and Emergent (in no specific order).

Table 5 - List of countries within each tier: Asia-Pacific

Exemplar (8)			
 Commonwealth of Australia	 Republic of India	 United Arab Emirates	 Japan
 Kingdom of Saudi Arabia	 New Zealand	 Sultanate of Oman	 Republic of Singapore
Emergent (27)			
 State of Qatar	 Tuvalu	 Kingdom of Cambodia	 Nepal
 Hashemite Kingdom of Jordan	 Republic of Kiribati	 Republic of Nauru	 Republic of Yemen
 Socialist Republic of Viet Nam	 Kingdom of Bhutan	 Republic of Palau	 Republic of Vanuatu
 People's Republic of Bangladesh	 Kingdom of Bahrain	 Independent State of Samoa	 Independent State of Papua New Guinea
 Republic of Fiji	 Republic of the Marshall Islands	 Kingdom of Tonga	 Solomon Islands
 Democratic Socialist Republic of Sri Lanka	 Syrian Arab Republic	 Republic of Maldives	 Republic of the Union of Myanmar
 State of Kuwait	 Republic of Lebanon	 Mongolia	

What results imply

1 How leading countries reach the top tier:

Australia, India, and Japan have taken the long route, building strong policy frameworks and mature markets over decades. Meanwhile, West Asian Exemplars such as the UAE and Saudi Arabia have moved much faster, supported by strong solar resources (GHI of 5.9–6.3 kWh/m²/day) and access to low-cost capital (5–8%).

2 Financing conditions are the primary differentiator:

The biggest gap isn't in resource, it's in financing. The UAE and India sit at one end, with India alone attracting around USD 21 billion in solar investment in 2025, backed significantly by green bonds. At the other end, Papua New Guinea and Myanmar face capital costs of 13–20%, making it difficult for even strong projects to reach financial close.

3 Several countries are approaching Exemplar status:

Qatar, Jordan and Viet Nam are just below the Exemplar mark. Viet Nam, with electricity demand growing at ~10% annually in 2024, is approaching the Exemplar threshold.



4 Structural constraints limit progress in lower-tier markets:

Yemen has one of the strongest solar resources yet struggles with weak policy and high system losses (31% in 2023). Myanmar faces low electricity access and the highest cost of capital in the region. For Pacific Island states, the challenge is different: limited scale and shallow markets hold them back more than ambition.



3.2.2 Latin America and the Caribbean (LAC)

Countries in the LAC region are classified into two tiers, Exemplar and Emergent (in no specific order).

Table 6 - List of countries within each tier: Latin America and the Caribbean

Exemplar (7)			
 Republic of Chile	 Federative Republic of Brazil	 Republic of Peru	 Republic of Panama
 Republic of El Salvador	 Republic of Argentina	 Dominican Republic	
Emergent (19)			
 Republic of Costa Rica	 Saint Kitts and Nevis	 Republic of Cuba	 Commonwealth of Dominica
 Jamaica	 Co-operative Republic of Guyana	 Plurinational State of Bolivia	 Republic of Nicaragua
 Barbados	 Saint Vincent and the Grenadines	 Republic of Paraguay	 Bolivarian Republic of Venezuela
 Antigua and Barbuda	 Saint Lucia	 Belize	 Republic of Haiti
 Grenada	 Republic of Trinidad and Tobago	 Republic of Suriname	



What results imply

1 Chile sets the benchmark:

Chile stands out as the region's most well-rounded country, leading across multiple dimensions. Its strong solar resource supports the lowest benchmark LCOE in the region (USD 0.07/kWh), with solar already contributing 23% of generation in 2024. What truly differentiates Chile, however, is its deep domestic bank credit to the private sector, equivalent to ~76% of GDP, giving it a level of financial stability few emerging countries can match.

2 Brazil is driving scale:

It leads on market maturity, policy enablers and energy imperatives, attracting USD 13.7 billion in solar investments and USD 103 billion in clean energy overall in 2025. With a CAGR of 62% solar growth over five years (2019–2024), alongside a domestic manufacturing base, Brazil is closest to building a full-fledged solar industry in the region.

3 Strong policy, but uneven financing:

Policy frameworks are a clear strength across LAC, with countries like Chile, Brazil, and Argentina scoring highly on governance and enablers. Yet financing remains uneven. While capital is available at 6–8% in stronger countries like Chile, it rises sharply to 16–20% in countries such as Bolivia, Suriname, Venezuela, and Haiti, keeping many countries from progressing.

4 The Caribbean is constrained by scale, not intent:

Most Caribbean countries are not underperforming, they are constrained. While policy frameworks and macro stability are relatively sound, limited market size and shallow depth restrict growth. High power costs (~USD 280/MWh in Jamaica in 2024) further complicate the transition. Where institutional and macroeconomic conditions are most constrained, financing costs of 16–20% leave distributed, grant-anchored models as the practical route.





3.2.3 Africa

Countries in the Africa region are classified into two tiers, Exemplar and Emergent (in no specific order).

Table 7 - List of countries within each tier: Africa

Exemplar (18)			
 Arab Republic of Egypt	 Republic of Cabo Verde	 Republic of Botswana	 Republic of Angola
 Kingdom of Morocco	 Republic of Rwanda	 Republic of Namibia	 United Republic of Tanzania
 Republic of Mauritius	 Republic of Cote d'Ivoire	 Republic of Togo	 Republic of The Gambia
 Republic of Zambia	 Republic of Senegal	 Republic of Zimbabwe	 Republic of Mali
 Republic of Tunisia	 People's Democratic Republic of Algeria		
Emergent (29)			
 Republic of Madagascar	 Union of the Comoros	 Democratic Republic of the Congo	 Federal Republic of Somalia
 Republic of Uganda	 Republic of Malawi	 Federal Democratic Republic of Ethiopia	 Republic of Guinea-Bissau
 Federal Republic of Nigeria	 Republic of the Niger	 Republic of the Sudan	 Republic of Burundi
 Republic of Seychelles	 Gabonese Republic (Gabon)	 Republic of Chad	 State of Eritrea
 Republic of Ghana	 Democratic Republic of Sao Tome and Principe	 Republic of Equatorial Guinea	 Republic of Liberia
 Burkina Faso	 Republic of Benin	 Republic of Cameroon	 Republic of the Congo
 Republic of Mozambique	 Republic of Djibouti	 Republic of Guinea	 Republic of South Sudan
 Kingdom of Eswatini			

What results imply

1 North Africa leads regional solar readiness:

Egypt leads on technological feasibility, supported by exceptional solar resources (GHI of 6.3 kWh/m²/day), near-universal electricity access, and annual electricity demand growth of 7% in 2024, while its grid infrastructure remains broadly capable of supporting expansion. Morocco has increased solar capacity by a CAGR of 16% during 2019–2024, while Tunisia, Algeria, and Mauritius complete a northern-and-island bloc that anchors the top tier.

2 Institutional and financial capacity drive differentiation:

With GHI exceeding 5 kWh/m²/day across most of the continent, solar resource is rarely the constraint. Instead, classification hinges on institutional and financial capacity. Ethiopia illustrates this gap: despite strong solar irradiation of 5.85 kWh/m²/day, solar accounted for only about 0.16% of its electricity generation in 2024. High financing costs of 16–20% and limited access to dedicated green-finance and solar-lending products constrain its ability to translate that resource potential into deployment.

3 Financing is the true gatekeeper and access matters more than cost:

Most African countries face borrowing rates in the 16–20% range. Yet Mauritius and Tunisia achieve strong financing scores, supported by targeted solar lending programmes, investment promotion institutions and green financial instruments. Meanwhile, Morocco (8.5–11%), Senegal (9–12%) and Botswana (~7–10%) benefit from the continent's lowest borrowing costs, i.e. ~7–12%. What separates them from Ethiopia and South Sudan is not interest rates alone, but the presence or absence of a functioning financing ecosystem.



4

Unmet demand strengthens the case for solar:

Electricity access remains extremely low in parts of the continent (5% in South Sudan, 13% in Chad, 37% in Mozambique, and 54% in Zambia), representing hundreds of millions of potential customers. Countries in the least-ready tier combine this demand gap with weaker institutional and market foundations.



3.2.4 Europe and the Others

Countries in Europe and the Others region are classified into two tiers: Exemplar and Emergent (in no specific order).

Table 8 - List of countries within each tier: Europe and the Others

Exemplar (6)			
 United States of America	 Federal Republic of Germany	 Kingdom of the Netherlands	 Republic of France
 Kingdom of Spain	 Republic of Italy		
Emergent (13)			
 Kingdom of Denmark	 Republic of Cyprus	 State of Israel	 Hellenic Republic (Greece)
 Grand Duchy of Luxembourg	 Kingdom of Norway	 Republic of Malta	 Republic of Armenia
 Kingdom of Sweden	 Hungary	 Romania	 United Kingdom of Great Britain and Northern Ireland
 Republic of Moldova			

What results imply

1

The United States sets the benchmark:

It is among the strongest performers in two of the seven drivers (Infrastructure and Financing), underpinned by roughly USD 76 billion in solar investment in 2025, a scale unmatched by any peer in the group.

2 Resource system inversion defines the region:

The Netherlands, despite a modest GHI of just 2.86 kWh/m²/day, achieves Exemplar status through strong macroeconomic stability and sophisticated policy design. By contrast, sun-rich countries such as Israel, Cyprus, Malta and Greece (GHI 4.5–5.8 kWh/m²/day) dominate on technological feasibility but lag in market architecture.

3 With cheap capital, market design becomes decisive:

Financing costs across the region are among the lowest globally, around 3% in the UK, 3–6% in Norway, and 4–7% in Spain. In this context, market structure, not cost of capital, drives differentiation. Spain leads on market maturity, supported by a fully liberalized retail market and a strong PPA ecosystem, where solar represents 64% of signed contracts (2021–2025); in Italy, that share reaches 83% during the period. Results are evident: in 2025, solar already accounts for roughly 24% of generation in Hungary and Luxembourg and 21% in Spain, demonstrating how far even moderate solar resource can go under well-designed systems. Even latecomer Armenia has expanded its solar capacity by a CAGR of 87% over five years (2019–2024).

4 Moldova's borrowing costs of ~14–17%,

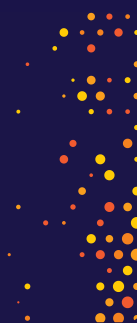
against 3–7% in neighbouring markets, show how far financing conditions can diverge within one region. With no recorded solar PPAs and limited readiness across five of the seven drivers, favourable solar potential has yet to translate into investment.

Taken together, the global and regional classifications point to one conclusion: solar readiness is shaped less by sunlight alone and more by the enabling environment that turns resource potential into investment. Countries with strong solar resources can still stall where financing is costly or misaligned, while more modestly endowed markets can advance when capital is affordable, institutions are credible and policy frameworks are complete. The next chapter examines this financing constraint in practice and sets out how local currency financing (LCF) can help address it.





04 CHAPTER 4 Local Currency Financing



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The previous chapter has positioned 127 ISA Member Countries across four global tiers and within regional peer groups. Across countries and regions, one constraint appears consistently: solar projects need finance that is both affordable and aligned with the currency in which revenues are earned. Capital that is available but too expensive can be as binding as capital that is unavailable. The twin challenge of availability and affordability has become a defining factor in the pace and scale of solar deployment. The analysis now translates the benchmark into a financing diagnosis, examining why LCF matters, what the data shows, and the practical solutions already helping to address the challenge.

4.1 Local revenues, foreign debt: the mismatch no project can engineer away

Solar projects earn their revenues in local currency. They generate electricity for local consumers, receive payments from local utilities, and operate entirely within local economies. Yet for decades, many of these projects have relied primarily on capital denominated in US dollars or euros. The challenge follows a clear sequence. The core problem is the absence of local bank finance: in many countries, domestic banks and capital markets lack the depth, long-term financing capacity, or risk appetite needed to support solar projects. As a result, developers often turn to foreign-currency financing, which in turn creates a mismatch between project revenues and debt obligations. Project revenues and project debt end up denominated in two different currencies, a structural mismatch that turns an ordinary exchange-rate movement into a financial risk. When a local currency weakens, debt repayments become more expensive in local-currency terms even though revenues remain unchanged, and a project that is performing perfectly well operationally can slide into distress for reasons entirely outside its control.

When solar projects borrow in foreign currency but earn revenues in local currency, exchange-rate movements can increase debt-servicing costs without a corresponding rise in revenues. This creates currency risk that lenders and investors must either absorb, hedge, or price into financing.

The impact is reflected in financing costs with utility-scale solar financing costs typically ranging from around 7% in advanced economies to 13% in emerging economies and above 16% in least-developed economies. These higher financing costs ultimately increase the cost of electricity and can slow renewable-energy deployment.

Country risk is a key reason why the cost of capital varies across markets. Comparing these markets with their long-term sovereign credit ratings for foreign-currency borrowing shows how closely the cost of solar finance is linked to a country's creditworthiness:

Table 9 - Relationship between Sovereign Credit Ratings and Cost of Capital across indicative countries

Country	Indicative financing cost band, 50–100 MW utility-scale solar PV	S&P's Sovereign Ratings	Moody's Ratings
 Malaysia	6.0%–8.5%	A-	A3
 Thailand	6.0%–8.5%	BBB+	Baa1
 Philippines	6.0%–8.5%	BBB+	Baa2
 Viet Nam	8.5%–11.5%	BB+	Ba2
 Indonesia	8.5%–11.5%	BBB	Baa2
 Mexico	8.5%–11.5%	BBB	Baa2
 India	8.5%–11.5%	BBB	Baa3
 Brazil	11.0%–13.5%	BB	Ba1
 South Africa	11.0%–13.5%	BB	Ba2

A broad pattern emerges in which financing costs tend to increase as sovereign credit quality deteriorates. Countries with higher sovereign ratings generally exhibit lower financing costs, while those with lower ratings tend to face the higher costs. Because project financing is usually priced above the sovereign borrowing rate, weaker sovereign ratings increase financing costs for solar projects, even when individual projects are well structured. Country and currency risks also reinforce each other, as the same macroeconomic weaknesses that weaken sovereign ratings often contribute to currency depreciation, further increasing the cost of solar finance. Seen this way, much of the financing gap is a credit-rating gap. A solar plant is a capital asset with almost no fuel cost, so more than half of what the consumer finally pays can be the cost of capital rather than the cost of equipment. When that capital is priced at around 8% in one country and close to double that in another, the comparison is not between two energy systems; it is between two credit ratings, with the difference labelled a development gap.

In many emerging markets, this challenge is further compounded by currency volatility. Local currencies can come under pressure for a variety of reasons, including dependence on imported fossil fuels, external debt obligations, inflationary pressures, and broader global economic shocks. While these factors originate at the macroeconomic level, their impact is felt directly by solar projects financed in foreign currency.

As currencies depreciate, borrowing becomes more expensive, making it harder to finance clean-energy projects. Breaking this cycle requires more than a single financial solution. It needs a fundamental shift in how RE projects are funded and, crucially, in the currency in which that funding is provided.

Why local currency financing matters

LCF refers to a broad set of financial instruments, including bank loans, bonds, equity investments, and guarantee-backed structures, that are raised and repaid in a country's own currency. Local currency financing helps align revenues and repayments, creating greater certainty for developers and investors alike. Once this alignment is achieved, a range of benefits begins to emerge, strengthening both project economics and the broader energy transition:

Table 10 - What changes when debt and revenue share a currency

Effect	What it means
Revenue–debt alignment	Currency depreciation no longer creates solvency risk for the project; the exposure moves to importers and consumers rather than sitting on the project's balance sheet. Foreign exchange (FX) risk can be managed through currency swaps or forward contracts, but these instruments add costs. In volatile currencies, hedging can increase annual borrowing costs by several percentage points, while long-term coverage may not be available. These costs are typically borne by the developer and passed on through the tariff. Where full local currency financing is not available, two approaches can reduce the mismatch: indexing project revenues to inflation so that cash flows remain aligned with debt-service obligations and establishing public hedging platforms. For example, Brazil's Eco Invest programme combines concessional local-currency capital with long-term FX hedging provided through the central bank and local banks. Aligning project revenues with debt obligations therefore underpins the three benefits that follow: a lower risk premium, broader investor access and greater access for small developers.
Lower risk premium	LCF aligns debt repayments with project revenues, reducing the currency mismatch that often arises when projects borrow in foreign currency, such as through External Commercial Borrowings. With devaluation risk no longer priced into the project loan, lenders can remove the currency premium from their spreads. Whether this lowers the overall cost of capital depends on domestic interest rates, which may exceed the hedged cost of dollar debt.
Broader investor access	LCF better matches the liability profiles of domestic pension funds, insurers and other institutional investors. This can mobilize longer-tenor domestic capital and reduce reliance on foreign currency borrowing.
Greater access for small developers	Smaller developers often cannot access international hard-currency finance on suitable terms. LCF provides a more practical funding pathway, enabling a wider set of market participants to invest in and deploy solar solutions.

LCF sits at the heart of the solar investment challenge. Across diverse markets, its availability often determines how quickly projects move from planning to deployment and how affordable that transition can be. In some countries, domestic financial systems can support solar investment effectively, while in others, limited lending capacity, shallow capital markets, or high currency risk continue to constrain growth.

The analysis that follows explores this challenge from three perspectives. It begins with a global view, examining how LCF conditions vary across development groups and where key gaps remain. It then turns to the 16 countries with direct ISA partnerships, highlighting country-specific barriers and opportunities. Finally, it presents a set of real-world transactions that demonstrate how these financing challenges are already being addressed in practice, showing that the solutions are proven and increasingly ready to be scaled.

4.2 What the evidence shows: the LCF pathway across development status

Access to LCF is influenced by far more than the mere availability of financial instruments. It is shaped by the depth of domestic financial systems, the cost of capital faced by solar developers, currency stability, and the availability of lenders and products in local currency. The indicators below capture these dimensions across development groups and help identify where LCF barriers are most binding.

Table 11 - Comparison of financing indicators across development groups

Indicator	Developed Countries	Developing Countries	Least Developed Countries
Average bank credit depth for private-sector financing (% of GDP)	~85%	~45%	~23%
Average financing cost for utility-scale solar PV (%)	~7%	~13%	16%
Average currency depreciation over past 5 years (%)	1.5%	~6%	~6%
Average active local-currency lender base per 100,000 adults (Commercial bank branches and Micro-finance institutions)	~21	~19	~13
Share of countries with dedicated green finance instruments within respective group	~95%	~83%	50%

Source: EoDS 2026 KPI dataset

The KPIs do not move in a straight line across the development groups, and these differences reveal important insights about where financing systems are succeeding and where they are struggling.

i Cost of capital is the key differentiator*:

Utility-scale solar PV financing costs average about 7% in developed countries, 13% in developing countries, and 16% in least developed countries. Rates range from about 3% in the United Kingdom to around 11% in India, reaching 20% in the highest-cost markets. As technology and construction costs are largely comparable across markets, this gap is driven primarily by the cost of capital and perceived risk, making LCF a critical instrument for scaling solar investment.

*The cost of capital for a solar utility is the minimum blended rate of return a project or company must earn on its financing mix to satisfy both debt lenders and equity investors.

ii

Domestic financial capacity limits the scale of LCF:

Private-sector credit averages about 85% of GDP in developed countries, compared with ~45% in developing countries and ~23% in least developed countries. The gap is clear: Denmark's credit-to-GDP ratio is 144%, compared with around 42% in India and just 6% in Angola. Where domestic financial systems are shallow, countries may need guarantees, concessional lines of credit or blended finance before local capital can support solar deployment at scale.

iii

Currency depreciation remains a challenge:

Average five-year currency depreciation is broadly similar in developing countries (6.0%) and least developed countries (6.3%). However, these numbers are partly influenced by countries with pegged currencies, such as Djibouti, as its currency is pegged to the US dollar. Similar patterns appear in Panama and some Caribbean and Gulf countries. As a result, headline depreciation rates can understate actual currency risk. In non-pegged countries such as South Sudan, depreciation remains close to 70%, and local-currency revenues can become insufficient to service hard-currency debt, making LCF or currency-risk mitigation essential.

iv

Local lender base falls sharply in least developed countries:

The number of lender institutions per 100,000 adults is relatively similar in developed countries (21.3) and developing countries (19.3) but drops to 13.1 in least developed countries. Within this group, differences are wide: Bangladesh has about 31 lenders per 100,000 adults, while Niger has around 3. This limits competition, credit availability and the ability to offer tailored solar finance products. It also shows why LCF solutions need to be country-specific rather than one-size-fits-all.

v

Green finance instruments are, in the report's assessment, the most readily closed gap:

Green finance instruments include green bonds, green loans, dedicated green credit lines, refinancing windows, partial credit guarantees, and green banks or funds designed to support climate-aligned investment. For solar pipelines, these instruments can ring-fence capital for eligible projects, lower the cost of funds where concessional support is attached, extend loan tenors, absorb part of the credit risk, and signal confidence to domestic banks and institutional investors. Their availability, however, remains uneven: dedicated green finance instruments exist in about 95% of developed countries and 83% of developing countries, but only 50% of least developed countries. Unlike credit depth or lender availability, this is largely a policy and institutional gap, making it one of the quickest areas where deliberate action can improve access to clean energy finance.

The findings point not to a lack of ambition, but to a financing ecosystem that struggles to turn policy goals into investable and bankable solar projects. However, these challenges are not the same everywhere. The averages of the development groups help identify broad trends, but they can also mask important differences between countries. Some may be only one reform away from unlocking investment, while others require a broader set of changes. Understanding these differences requires a closer look at the country level.

4.3 CPF/CPS countries through the LCF lens

The analysis across development groups reveals a clear pattern: LCF constraints differ by country depending on financial-system maturity and investor-perceived risk. In some markets, the main constraint is currency volatility; in others, it is limited lender capacity, shallow capital markets or high financing costs.

Currency volatility is especially important because it can raise import costs, feed inflation, increase domestic lending rates, shorten loan tenors and make local-currency assets less attractive to investors. However, currency stability alone does not determine LCF readiness. The ability to mobilize local-currency finance also depends on the availability of affordable and long-tenor capital, domestic financial-sector depth, lender capability, appropriate financing instruments, credible project revenues and a pipeline of bankable solar projects.

For the 16 countries where ISA has established a Country Partnership Strategy (CPS) or Country Partnership Framework (CPF), the analysis moves beyond broad benchmarking to assess LCF readiness at the country level. The objective is to evaluate whether the wider country ecosystem can enable domestic financial institutions and capital markets to mobilize, structure and sustain local-currency finance for solar investment over the long term.

The broader EoDS framework comprises 90 KPIs across seven drivers. For the LCF readiness assessment, a focused subset of 28 KPIs was selected from across these seven drivers based on their direct or indirect relevance to local currency financing. These KPIs capture both core financing conditions, such as financing costs, currency stability, domestic credit depth, lender access and the availability of financing instruments, and the wider macroeconomic, policy, technological, market, infrastructure and energy-system conditions that influence whether local-currency finance can be deployed into viable and bankable solar investments.

Each country is assessed using a five-point LCF readiness scale derived specifically from these 28 LCF-relevant KPIs. The selected KPIs are drawn from the broader 90-KPI EoDS framework. The LCF readiness score is therefore broader than a financial-sector assessment alone: it considers both the availability of local-currency finance and whether the wider enabling environment can translate that finance into sustainable solar investment.

To establish practical regional reference points, the same LCF readiness framework was applied to all the countries across the three regions in which the 16 CPF/CPS countries are located. The highest-scoring country in each region emerged as the regional benchmark: Morocco for Africa, Australia for Asia-Pacific, and Chile for Latin America and the Caribbean.

These countries were selected based on their assessed LCF readiness scores, rather than through a subjective or predetermined selection. Benchmarking CPF/CPS countries against the strongest-performing country in their respective region provides a more relevant comparison than applying a single global standard. It shows the level of LCF readiness already achieved within the regional context and helps identify the specific financial, institutional and market improvements required in each CPF/CPS country. The gap between a CPF/CPS country and its regional benchmark indicates the relative strength and completeness of the conditions supporting LCF within that region. It should not, however, be interpreted as a uniform reform pathway or as an indication that every feature of the benchmark country must be replicated. The relevance and sequencing of interventions will depend on the composition of each country's score and its specific financing and solar-market constraints.

The five-point score ranges from 1 to 5, where 5 reflects relatively favourable conditions for LCF and 1 reflects relatively limited readiness. Because the score is composite, countries with similar scores may have materially different strengths and constraints. For example, one country may benefit from currency stability but lack domestic financial depth and tailored financing products, while another may have broader lender access but face high financing costs or project-bankability constraints. The score should therefore be interpreted alongside the underlying KPI results and country-level assessment rather than as a standalone ranking of financial-system strength.

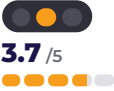


4.3.1 Africa

Africa combines some of the world's strongest solar resources with some of its toughest financing conditions. High borrowing costs, exchange rate volatility, and limited access to long-term finance continue to constrain solar investment across much of the region. As a result, access to suitable local currency financing can determine whether projects become financially viable and progress from development to deployment. While Morocco demonstrates how a strong financing ecosystem can overcome these barriers, the region's other CPF/CPS countries span a wide range of readiness levels, highlighting both the diversity of challenges and the significant opportunity to strengthen local currency financing across Africa.



Table 12 - LCF assessment of African countries

Country	LCF readiness (1–5)	LCF assessment
 Morocco (benchmark)	 5.0 /5	Sets the regional benchmark for LCF, due to its balanced strength across affordability, financing depth, and market readiness. With a cost of capital of 8.5–11%, active bank lending, local currency instruments and green finance mechanisms, its solar market offers the most enabling environment for LCF-backed solar investment.
 Mauritius	 4.5 /5	Strong financial markets (domestic credit to the private sector by banks is ~70% of GDP) and a stable currency provide a solid foundation, but the challenge is turning available capital into bankable solar project opportunities.
 The Gambia	 3.7 /5	A relatively stable currency (~6% depreciation during 2019–2024) and local currency instruments are in place, but limited bank lending (~9% of GDP) and the absence of tailored financing products continue to constrain investment.
 Rwanda	 3.6 /5	One of the region's strongest financing ecosystems, with tailored bank products, local currency PPAs, and green finance instruments already available. But high financing costs (13–16%) and a small lender base limit affordability and transaction scale.
 Uganda	 3 /5	Benefits from the cohort's most stable currency (<1% depreciation during 2019–2024) but has about two active lending institutions per 100,000 adults, which limits competition, credit availability, and project-level financing capacity.
 Nigeria	 2.8 /5	Local currency PPAs and green finance instruments are in place, but severe currency volatility (~37% depreciation during 2019–2024) remains the biggest obstacle to scaling LCF. Depreciation raises the cost of imported equipment, feeds inflation, increases local lending rates and shortens tenors, making exchange-rate stability critical for translating Nigeria's LCF toolkit into scalable solar finance.
 Ghana	 2.7 /5	Financing products exist, but high borrowing costs (16–19%), currency depreciation (~22% during 2019–2024), and limited banking depth (~8% of GDP) make local-currency project finance expensive and difficult to scale.
 Ethiopia	 2.5 /5	Faces multiple constraints, including high financing costs (16–20%), significant currency depreciation (~23% during 2019–2024), and limited availability of dedicated green finance or tailored lending products. These gaps constrain both affordability and access to local currency finance.
 Regional benchmark  Score 2.5 and above  Score below 2.5 Signal colours are a visual reading aid for the LCF readiness score (1–5).		

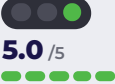
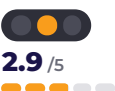
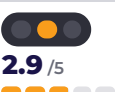
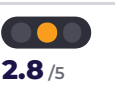


4.3.2 Asia-Pacific

Asia-Pacific spans the full spectrum of LCF conditions, from mature markets with low financing costs and strong financial institutions to smaller island economies constrained by limited lender participation and market size. While Australia demonstrates that large-scale solar investment can be financed successfully in local currency, the region's CPF/CPS countries face a range of challenges, from scaling lender participation to strengthening financing products and market structures. Their varying readiness levels highlight both the diversity of financing conditions and the significant potential to expand local currency financing across the region.



Table 13 - LCF assessment of Asia-Pacific countries

Country	LCF readiness (1-5)	LCF assessment: headline priority
 Australia (benchmark)	 5.0 /5	Sets the regional benchmark for LCF readiness, combining low financing costs (5–7%), deep domestic credit markets (129% of GDP), and a complete financing ecosystem. Its mature renewable energy market and institutional base make it the most scalable environment for local currency backed RE investment.
 Sri Lanka	 3.4 /5	Strong financing foundations, including local currency PPAs, tailored products, and relatively strong lender access; however, high financing costs (16–20%) remain the main barrier to affordable project finance.
 Bangladesh	 3.0 /5	Benefits from the region's broadest lender access, with about 31 commercial bank branches and MFIs per 100,000 adults. However, currency risk and project bankability constraints need to be better managed to translate financial access into scalable RE investment.
 Fiji	 2.9 /5	Combines relatively stable currency conditions, domestic credit of approximately 76% of GDP, and demonstrated sustainable-finance experience. Fiji has an established Green Bond Framework, completed an FJD 100 million sovereign green-bond issuance in 2017, and subsequently developed a broader Sustainable Development Bond Framework. Its score nevertheless reflects the need to extend these sovereign-level foundations to a larger pipeline of bankable solar projects through aggregation, risk-sharing and credit enhancement.
 Kiribati	 2.9 /5	Use of the Australian dollar reduces currency mismatch where project revenues and debt obligations are both Australian-dollar denominated. However, this does not eliminate project, interest-rate, payment or market-liquidity risks, nor does it automatically provide access to Australia's financial depth. Kiribati's small market, limited domestic financing capacity and lack of tailored renewable-energy products mean that aggregation, guarantees and concessional support remain important for scaling solar investment.
 Bhutan	 2.8 /5	Bhutan's currency, the ngultrum, is pegged 1:1 to the Indian rupee, which reduces exchange-rate uncertainty for ngultrum and rupee-denominated finance. Bhutan also benefits from financing costs of approximately 9–11.5% and comparatively broad branch-based financial access. These strengths support a financing-driver result that is higher than Kiribati's. However, the peg does not automatically provide access to India's capital-market depth or create long-tenor solar products and investor demand. Bhutan has developed a Sustainable Financing Framework and published a Green Finance Taxonomy in August 2026, but these recent foundations have yet to be demonstrated through comparable thematic-bond and scalable solar-lending transactions. Its marginally lower composite score reflects the combined effect of all 28 LCF-relevant KPIs, not weaker currency conditions alone.
 Solomon Islands	 1.9 /5	High financing costs (16–19%), limited lender depth, and weak availability of LCF instruments continue to constrain RE investment. Strengthening basic financing channels remains the immediate priority.

Country	LCF readiness (1–5)	LCF assessment: headline priority
 Papua New Guinea	 1.7 /5	Has one of the weakest LCF enabling environments in the region, with only around two commercial bank branches and MFIs per 100,000 adults and very limited financing instruments. The immediate priority is to expand local lending access and introduce basic RE project finance tools.

 Regional benchmark
  Score 2.5 and above
  Score below 2.5
 Signal colours are a visual reading aid for the LCF readiness score (1–5).



4.3.3 Latin America and the Caribbean

The LAC region has some of the most advanced LCF markets in the Global South, with countries such as Chile, the regional benchmark, successfully mobilizing domestic capital for clean energy at scale. At the same time, the region remains highly diverse, with financing costs varying significantly across countries. The Caribbean presents a unique contrast: while currency pegs provide exceptional exchange-rate stability, small financial markets often lack the institutions and financing products needed to fully leverage that advantage.

Table 14 - LCF assessment of LAC countries

Country	LCF readiness (1–5)	LCF assessment: headline priority
 Chile (benchmark)	 5.0 /5	Leads the LAC cohort on LCF readiness, supported by affordable financing, strong solar market maturity, and enabling infrastructure. A 6–8% cost of capital, 22.78% solar share in electricity generation, and relatively low T&D losses of 5.91% indicate that Chile combines bankable financing conditions with proven grid-level solar integration.
 Grenada	 2.8 /5	Benefits from zero exchange-rate volatility and solid banking depth (~56% of GDP) but limited tailored financing products and a small project pipeline restrict investment scale.
 Cuba	 2.8 /5	Faces high financing costs (16–20%), a weak sovereign credit profile, and limited financing options, making small local-currency pilot programmes the most practical starting point.

 Regional benchmark
  Score 2.5 and above
  Score below 2.5
 Signal colours are a visual reading aid for the LCF readiness score (1–5).



The CPF/CPS analysis shows that LCF readiness is not determined by a single factor. Some countries have stable currencies but limited lender participation; others have active local banks but face high borrowing costs, weak off-taker credibility, or limited green finance instruments. This means that improving LCF readiness requires more than identifying gaps: it requires understanding how these gaps have been addressed in real transactions. The next section therefore shifts from diagnosis to practice. It presents selected case studies from distributed renewable energy and battery storage to show how projects across different markets have aligned local revenues with local-currency finance, reduced investor risk, secured reliable offtake, used enabling policy frameworks, and mobilized domestic capital. These examples provide practical reference points for governments, developers, investors, DFIs, MDBs, and other stakeholders to further strengthen solar financing globally.

4.4 LCF in practice: from financing constraint to bankable project

The above analysis highlights areas where LCF readiness is strong and identifies the most significant remaining constraints. The next question is practical: how can those constraints be solved in real projects? The case studies below answer that question. They are not included as general project descriptions. Each case study identifies a specific financing blockage and then shows how a structure denominated in local currency – or aligned with the project's local-currency revenues – resolved it, unlocking applications such as distributed renewable energy (DRE) and battery energy storage systems (BESS).

None of these cases offers a formula to be copied line for line; each was shaped by its own country's institutions and market structure. Their value lies in showing how specific financing obstacles were converted into bankable structures that enabled DRE, solar irrigation and BESS projects to move forward. Each case is presented through a common analytical lens: the financing constraint, the local-currency solution, the structure that made the project bankable and the lesson for scale. For this reason, they provide useful reference points for the stakeholders – governments, developers, investors, financial institutions, DFIs, MDBs, and ISA.

The following case studies illustrate how real projects have addressed financing constraints through local-currency debt, payment-aligned revenue models, guarantees, contracted offtake, enabling regulation, and domestic bank participation.



4.4.1 Case study 1: ACOB Lighting, Nigeria – Local currency green bond for off-grid solar mini-grids

APPLICATION	SCALE / CAPACITY	FINANCING STRUCTURE	CORE LCF LESSON
DRE / off-grid solar-hybrid mini-grids	335 kWp PV + 1,146 kWh battery storage across 7 sites	NGN 1.51 billion (USD 1.1 million) local-currency green infrastructure bond; 7-year tenor; first-loss and guarantee support	Match naira revenues with naira debt and use credit enhancement to crowd in domestic investors

WHY THIS CASE MATTERS

ACOB shows how, even in a market with wider financing constraints, decentralized solar projects can become bankable when local-currency revenues are matched with local-currency debt and supported by aggregation and credit enhancement.

ANALYTICAL LENS	LCF INSIGHT
The financing challenge	- Revenues were expected in Nigerian naira but affordable long-tenor naira financing for off-grid solar was limited. - Hard-currency debt would create FX mismatch and debt-service stress if the naira weakened. - Small rural projects seen as financially fragile for institutional investors.
The LCF solution	- ACOB raised an NGN 1.51 billion (USD 1.1 million) local-currency green infrastructure bond with a seven-year tenor and two-year principal moratorium. - The structure aligned revenues and debt service in naira, reducing FX risk at the project level. - A first-loss tranche, InfraCredit credit enhancement, green certification, and upfront due diligence support made the bond acceptable to domestic institutional investors.
What made it bankable	- Revenue-debt currency alignment - Seven-site portfolio reduced single-project cash flow risk - Guarantee-backed credit enhancement, first-loss support, and Climate Bonds certification reduced investor risk - Nigeria Mini-Grid Regulation improved revenue certainty
Result and replication insight	- Off-grid solar can access domestic institutional capital when small projects are aggregated, de-risked, and structured in local currency. - Domestic savings can be channelled into DRE when regulation, portfolio design, and risk-sharing are aligned. - Replicable where mini-grid pipelines, credit enhancement and green-bond frameworks exist.

Sources: ACOB Lighting · ACOB – Projects · Nigeria Energy Ministry · InfraCredit – ACOB · InfraCredit – Green Issue · Sule-Aba-Panu (Edo) · Orotedo (Ondo) · Otu-Costain (Ondo) · Ajegunle (Edo) · Bolorunduro-Adewole · Bolorunduro-Adaja (Ondo) · Mile-13 (Ondo)

4.4.2 Case study 2: SunCulture, Kenya – PAYGo solar irrigation supported by local-currency customer payments

APPLICATION	SCALE / CAPACITY	FINANCING STRUCTURE	CORE LCF LESSON
DRE / PAYGo solar irrigation	Distributed farm-level solar irrigation kits, approximately 0.3 kWp each	USD 2.6 million pilot and USD 4 million follow-on support; carbon pre-finance ⁴ used to reduce customer affordability risk	Align customer payments with local-currency income and use support capital to reduce affordability risk.

WHY THIS CASE MATTERS

SunCulture shows that LCF is not only about project debt. For productive-use solar, the core issue is often whether customers can pay in their own currency over time. The case demonstrates how PAYGo instalments, carbon pre-finance, and local mobile-money payments can make solar equipment affordable and financeable.

ANALYTICAL LENS	LCF INSIGHT
The financing challenge	- Small farmers faced high diesel-irrigation costs and upfront affordability barriers. - Solar pumps could raise productivity, but repayment risk limited adoption. - Conventional debt was insufficient without payment alignment to farmer income.
The LCF solution	- PAYGo instalments in Kenyan shillings through mobile money over 24–36 months. - Carbon pre-finance reduced upfront kit prices by 25–40%. - Remote monitoring, after-sales service and customer screening supported repayment discipline.
What made it bankable	- Local-currency instalments matched farmer cash flows. - Support capital absorbed early affordability and carbon-price risk. - Digital payments and telemetry improved collections and O&M visibility. - Development partners also agreed to bear carbon credit price risk amid volatility in voluntary carbon markets.
Result and replication insight	- Productive-use solar became a monthly-payment product. - Replicable where mobile-money penetration, standardized kits, service networks and carbon MRV exist. - Useful for markets scaling solar irrigation, cold chains or rural productive loads.

Sources: AgriFI Challenge Fund · BII – SunCulture · BII – Investment · Engineering for Change · SunCulture · SunCulture – Impact · Shell Foundation · Duke Energy Access (2026) · SunCulture – Carbon · Kenya CSA Strategy 2017–26

⁴ Carbon credit pre-financing allows SunCulture in Kenya to borrow against the future value of carbon credits their solar pumps generate. By using these expected funds upfront, SunCulture can discount the price of their solar irrigation systems, making the technology much more affordable for smallholder farmers.

4.4.3 Case study 3: Scatec Kenhardt, South Africa – rand-denominated project finance for dispatchable solar-plus-storage

APPLICATION	SCALE / CAPACITY	FINANCING STRUCTURE	CORE LCF LESSON
BESS / solar + storage hybrid	540 MWp PV + 225 MW / 1,140 MWh BESS	ZAR 16.4 billion (USD 990 million) total cost; approximately ZAR 12.4 billion (USD 750 million) non-recourse project debt	Use contracted local-currency offtake to make solar storage bankable.

WHY THIS CASE MATTERS

Kenhardt shows how storage-backed solar can be financed as firm, dispatchable power when revenue is contracted before construction and debt is raised in the same currency as the project's revenue stream.

ANALYTICAL LENS	LCF INSIGHT
The financing challenge	- South Africa needed dispatchable renewable power amid outages and grid stress. - Lenders needed confidence in revenue from a complex hybrid asset. - Variable solar alone was not enough to support firm-power debt.
The LCF solution	- Secured 20-year Eskom PPA for 150 MW over a 16.5-hour daily window. - RMIPPPP defined the dispatchable product and standard contractual documents. - Raised rand-denominated non-recourse debt with DFI participation.
What made it bankable	- Long-term local-currency revenue contract. - Standardized procurement and lender-tested documents. - Defined dispatch window turned solar + BESS into a contracted service.
Result and replication insight	- Solar-plus-storage moved from variable generation to bankable firm capacity when offtake is clearly defined and debt is locally aligned. - Replicable where auctions procure dispatchable renewable windows and local/DFI-backed debt is available.

Sources: [Scatec \(financial close\)](#) · [Scatec \(launch\)](#) · [Renewables Now](#) · [IPP Projects](#) · [BII \(Kenhardt 2\)](#) · [Green Building Africa](#) · [BusinessTech](#)

4.4.4 Case study 4: IonTree, Taiwan Province of China – Local-currency debt for standalone battery storage

APPLICATION	SCALE / CAPACITY	FINANCING STRUCTURE	CORE LCF LESSON
BESS / standalone storage portfolio	64 MW / 262 MWh, approximately 4-hour duration	NTD 1.4 billion (USD 44 million) senior secured debt from HSBC and Cathay United Bank	Create a revenue market before expecting lenders to finance storage.

WHY THIS CASE MATTERS

IonTree shows that standalone storage can be locally financed when policy creates a clear revenue stream. The project is important because the battery was financed without a co-located generation asset, sovereign guarantee, or foreign-currency structure.

ANALYTICAL LENS

LCF INSIGHT

The financing challenge

- Taiwan Province of China needed fast-response grid flexibility as renewables expanded.
- Standalone batteries lacked a conventional energy-sales revenue model.
- Lenders needed predictable local currency cash flows.

The LCF solution

- With the help of Taipower's ancillary-services market, IonTree earns domestic currency cash flows by providing a service for frequency regulation and energy transfer.
- IonTree raised NTD-denominated senior secured debt.
- Revenues and debt were both in New Taiwan dollars, removing project FX mismatch.

What made it bankable

- Transparent Taipower ancillary-services revenue market design.
- The policy framework created a paid grid service and clear technical standards for BESS participation.
- Portfolio structure allowed additional units to be added.
- No sovereign guarantee or foreign-currency structure required.

Result and replication insight

- Standalone BESS became financeable through market design.
- Replicable where regulators define ancillary services and utilities procure flexibility transparently.
- Relevant for countries seeking to add storage without overburdening utility balance sheets or relying only on public funding.

Sources: Herbert Smith Freehills · DLA Piper · Billion Watts · Taipower Smart Grid

4.4.5 Case study 5: Terra Solar, Philippines – Domestic bank syndication for utility-scale solar-plus-storage

APPLICATION	SCALE / CAPACITY	FINANCING STRUCTURE	CORE LCF LESSON
BESS / integrated utility-scale PV + storage	3,500 MWp solar PV + 4,500 MWh BESS	PHP 150 billion (~USD 2.4 billion) syndicated loan; 15-year Omnibus Loan and Security Agreement; six domestic lenders	Mobilize domestic banks at scale when offtake and permitting are clear.

WHY THIS CASE MATTERS

Terra Solar shows how a large domestic banking system can finance grid-scale solar-plus-storage when the project has contracted offtake, permitting support, and local-currency debt aligned with domestic revenues.

ANALYTICAL LENS	LCF INSIGHT
The financing challenge	- Large project required long-tenor debt and revenue certainty. - Foreign-currency finance would create FX risk against peso-linked revenues. - Lenders needed confidence that a large solar-plus-storage project could be permitted, built and paid for under a credible offtake structure.
The LCF solution	- Secured long-term offtake for 850 MW to Meralco. - Raised PHP 150 billion (~USD 2.4 billion) syndicated loan entirely from domestic banks. - The 15-year facility funded both PV and BESS components, while the Board of Investments green-lane certification helped accelerate approvals and reduce execution uncertainty.
What made it bankable	- Contracted utility buyer. - Peso-denominated long-tenor debt. - Multi-bank domestic syndication. - Permitting support reduced execution uncertainty.
Result and replication insight	- Domestic banks became core financiers of energy-transition infrastructure when projects are structured at investment scale. - Replicable where utility offtake, local bank depth and permitting acceleration are aligned.

Sources: Manila Bulletin · Power Philippines · Meralco PowerGen (deal) · Energy-Storage.news · SPNEC (press release) · Meralco PowerGen (groundbreaking)

4.4.6 Practical LCF pathways emerging from the use-cases

The case studies show that LCF can be strengthened through a few practical and repeatable pathways. Each pathway addresses a specific weakness in the financing chain, whether currency mismatch, lender risk, revenue certainty, policy clarity or domestic capital mobilization. Together, they show how LCF can move from a diagnostic constraint to a bankable financing approach for solar deployment.

Table 15 - LCF pathways from case studies

LCF Pathway	Description
Match debt with the currency of revenue	Projects are more resilient when debt service is aligned with the currency in which revenues are earned. This reduces the risk that currency depreciation will undermine project economics.
Use risk-sharing to bring in commercial capital	Guarantees, first-loss capital, concessional tranches, and carbon pre-finance can help domestic lenders and investors enter sectors they may otherwise view as too new or too risky.
Secure predictable revenues before construction	LCF becomes easier when lenders can see a credible revenue stream, whether through PPAs, utility contracts, PAYGo instalments, or ancillary-service payments.
Let policy create the market	Clear regulations, auction frameworks, ancillary-service markets, and fast-track permitting systems can turn a technical solution into a financeable asset class.
Mobilize domestic capital for domestic assets	LCF becomes sustainable when local banks, pension funds, insurance companies, and domestic bond investors can invest in clean-energy assets that match their currency and risk profile.

Effective local currency financing rests on three pillars: supportive financial institutions, appropriate financing instruments and credible risk management. The strategic task for countries is diagnostic: identify the weakest link in the financing chain – currency alignment, lender confidence, offtake certainty, policy clarity or domestic capital mobilization – and deploy the instrument built for that specific weakness. **Instruments leverage market depth; they do not substitute for it. LCF also requires domestic banks with sufficient lending capacity, institutional investors able to invest in long-term assets, and reliable off-takers. Without these foundations, financial instruments cannot generate local-currency capital that is not available in the market.**

For example, a green bond cannot be issued into a capital market that barely exists, so instrument choice must track market maturity. Where capital markets remain shallow, the most practical entry point is a green loan carrying an interest subvention channelled through local banks and funded by government or concessional partners – a structure that works through the banking system countries already have rather than the capital market they do not yet have. Guarantees and DFI credit lines reinforce the same channel, while bond-based instruments gain relevance as domestic markets deepen. Sequenced this way, LCF converts from a diagnostic gap into a practical route for accelerating solar adoption.

The case studies show that DRE is a long-term solution for markets with low electricity access. By serving end-users directly in local currency, mini-grids, PAYGo systems, solar irrigation and cold chains can reduce dependence on financially weak utilities and delayed grid expansion. However, individual projects are often too small to justify transaction costs. Aggregating them into portfolios, supported by first-loss capital and foreign-exchange protection where needed, can reduce costs, diversify risk and attract institutional investors. For small island developing states, such structures may be essential to make DRE investable at scale.

The next question is not simply whether capital is reaching a country. Financing constraints have two distinct dimensions: whether sufficient domestic local-currency capital is available at affordable rates and for suitable loan periods and whether foreign capital can be used without creating unmanageable currency risk. Scaling solar therefore requires deeper domestic financing channels and transparent mechanisms for allocating, hedging or absorbing FX exposure when external finance remains necessary.

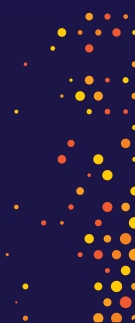




05

CHAPTER 5

Solar Investment Landscape



IN THIS CHAPTER

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5.2	Regional solar investment landscape	87
5.3	Drivers shaping solar investment in 2025	90

The assessment so far has set out the diagnosis: readiness varies widely across ISA Member Countries, and the ability to raise, structure, and repay solar investment in local currency increasingly distinguishes markets that can scale solar deployment from those that remain constrained. The analysis now shifts from readiness conditions to market evidence, examining where solar capital actually flowed in 2025 and whether investment patterns reinforce the findings of the readiness assessment.

Solar remained the largest single destination for renewable energy investment, attracting USD 436 billion (excluding co-located solar and storage) in 2025, even as the sector recorded its first annual decline in six years. However, the geography of this capital reveals a sharper story. Investment continued to concentrate in the most investment-ready markets, while many countries with some of the strongest solar resources attracted comparatively limited capital. The following section sets out the global investment position in 2025, the distribution of capital across regions and ISA tiers, and the key forces that shaped the year's shift. Through the LCF lens, this pattern is not incidental. Capital flows to markets where financing is affordable, risks are manageable, and repayment conditions are credible, precisely the gap that the readiness assessment seeks to explain.

Box 1 - Global Renewable Energy Investment Trends, 2025

USD 690 bn

Global renewable investment,
2025
(-9.5%, y-o-y)

USD 436 bn

Global solar investment
(excluding co-located solar
and storage), 2025

-12%

Change vs 2024
(first fall since 2019)

5.1 Global solar investment in 2025

Global renewable energy investment declined by 9.5% to USD 690 billion in 2025. Although this represented the first annual decline since 2013, total investment remained the second highest on record. The decline therefore reflects a moderation from the elevated investment recorded in 2024, rather than a broader reduction in renewable energy investment.

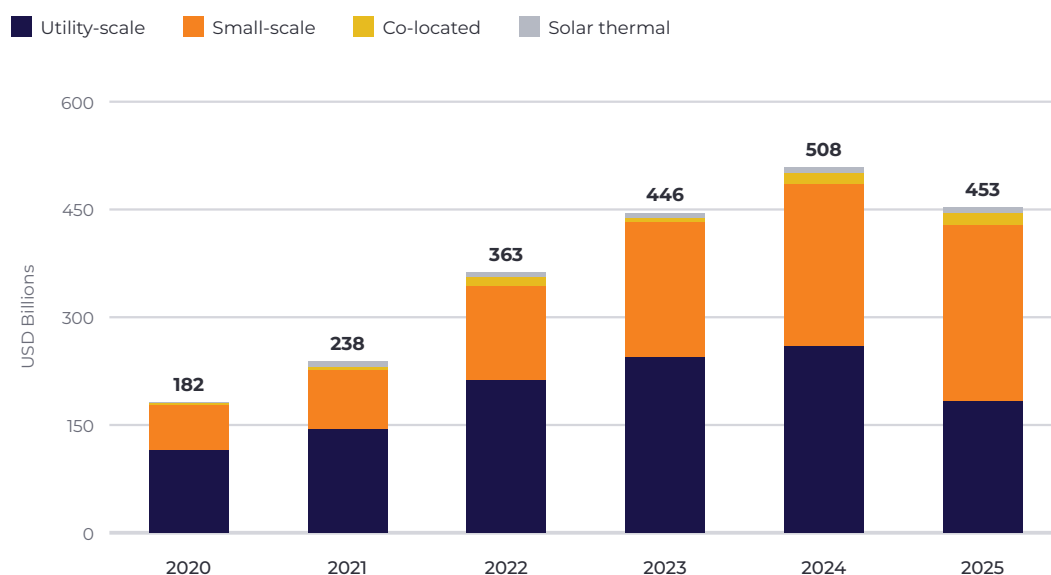
Solar remained the largest renewable energy investment segment, attracting USD 436 billion (excluding co-located solar and storage), compared with USD 225 billion for wind. Solar investment declined by 12% year on year, marking its first annual decrease since 2019. However, investment in 2025 remained close to the level recorded in 2023 and above the levels observed before 2022.

Including co-located solar and storage projects alongside small-scale solar, utility-scale solar and solar thermal, total investment across solar-related segments reached USD 453 billion in 2025. This confirms solar's continued prominence within renewable energy investment, despite the overall decline in capital flows during the year.

Investment trends across solar segments:

- The overall decline reflects differing investment trends across solar segments: Standalone utility-scale solar, previously the largest segment, fell 29% to USD 184 billion. This was the main reason solar investment dropped overall. It was driven mainly by China, where the shift to wholesale power pricing slowed new utility-scale investment commitments. Outside China, utility-scale solar investment declined by only around 2%, while India and the Middle East and Africa region recorded their highest-ever levels of solar investment.
- Small-scale solar⁵ grew 9% to USD 245 billion and, for the first time, became the largest solar segment. Its growth continued even though spending in China slipped in the second half of the year.
- Co-located solar-and-storage projects added USD 17.2 billion, a record, partly offsetting the fall in standalone utility-scale work.
- Solar thermal investment was steady at about USD 7.5 billion.

Figure 17 - Global solar investment by sub-sector, 2020–2025



Source: BloombergNEF. Solar totals include co-located solar and storage

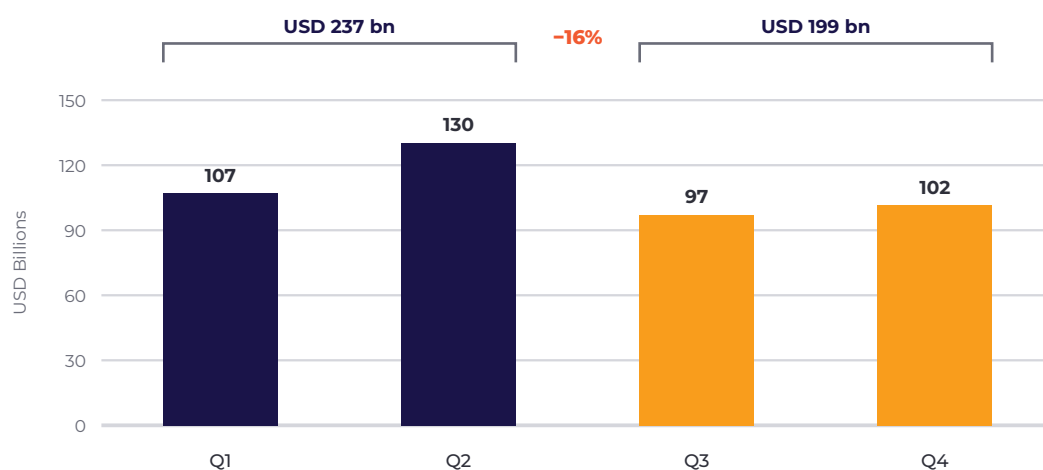
Solar financing lost momentum in the second half of 2025

Total solar investment, including USD 245 billion of small-scale solar, reached approximately USD 436 billion (excluding co-located solar and storage) in 2025. The headline figure, however, conceals a clear deceleration through the year: after peaking at USD 130 billion in Q2 (up from USD 107 billion in Q1), quarterly financing retreated to USD 97 billion in Q3 and USD 102 billion in Q4.

⁵ BNEF defines small-scale solar as rooftop or distributed solar PV systems with a capacity below 1 MW. This segment primarily covers residential and commercial installations.

As a result, financing in the second half of 2025 was roughly 16% below the first-half levels, mirroring the broader new-build market. The slowdown stemmed largely from China's transition to wholesale power pricing – a policy shift that reshaped project economics and slowed new commitments, with implications for global financing volumes into 2026. This deceleration contrasts with prevailing market expectations. With module and battery costs continuing to decline and demand outside China growing, financing volumes might have been expected to keep rising through the year. The explanation is a policy shock in a single market rather than a shift in the underlying economics of solar. China's transition from fixed tariffs to market-based pricing for new renewable energy projects, effective from mid-2025, reduced the revenue certainty on which utility-scale project finance depends, leading developers to delay new commitments until pricing rules and hedging arrangements became clearer. Because China accounts for a large share of global investment, this slowdown was sufficient to reduce second-half financing volumes even as investment outside China continued to grow. The episode reinforces a key theme of this report: solar financing depends as much on revenue certainty as it does on cost.

Figure 18 - Solar new-build asset finance, 2025



Source: BloombergNEF

5.2 Regional solar investment landscape

Regional performance diverged sharply in 2025. India and the Middle East and Africa reached record levels of renewable energy investments, while Latin America saw a clear pull-back, particularly in utility-scale solar.

India recorded its highest-ever renewable energy investment in 2025, at USD 28.6 billion, up from USD 25.0 billion in 2024. Solar accounted for about USD 21 billion of this total, also a record. The increase was supported by projects awarded through earlier utility-scale auctions, continued growth in rooftop installations, and rising corporate procurement of clean power. Several large solar financings crossed the one-gigawatt mark, including SJVN Green Energy's 1.4 GW Bikaner plant and the 1.2 GW CIL Pugal plant.

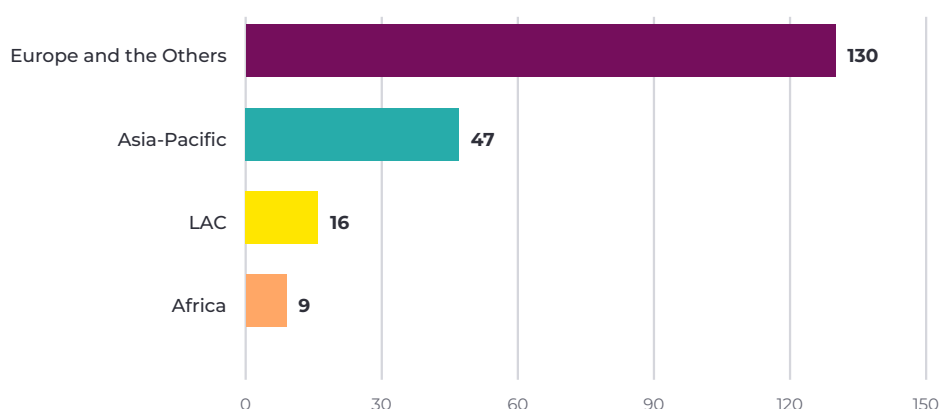
The Middle East and Africa also reached a record USD 38.1 billion, up 12%, marking the third consecutive year above USD 31 billion. Solar was the main driver, with investment rising 29% to USD 28.2 billion. Utility-scale solar attracted USD 16.2 billion, led by large projects in Saudi Arabia, South Africa and the United Arab Emirates, while small-scale solar investment reached about USD 12 billion, with South Africa and Nigeria among the strongest markets.

By contrast, Latin America declined by 11% to USD 24.7 billion. Solar remained the region's largest renewable technology, attracting USD 17.9 billion, but standalone utility-scale solar fell sharply by 39% to USD 4.1 billion as higher financing costs and grid constraints weighed on new project activity. Renewable energy investment in Brazil, the region's largest market, also declined by 22% to USD 16.4 billion. Globally, China remained the largest solar market, while the United States returned to second place.

Distribution of solar investments across ISA regions

Across ISA Member Countries, solar investment reached about **USD 203 billion in 2025**, accounting for roughly **46% of global solar investment**⁶. However, this headline share masks a clear concentration of capital in a few larger and more investment-ready markets. The Europe and the Others region attracted the most, at about USD 130 billion, driven mainly by the United States, which accounts for USD 76 billion, and Germany, at USD 17 billion. Asia-Pacific follows with about USD 47 billion, led by India and Saudi Arabia. LAC stands at USD 16 billion, with investment concentrated largely in Brazil. ISA's African members attract the least, about USD 9 billion, despite having some of the strongest solar resources, with Nigeria, Tunisia, Namibia and Cameroon among its larger contributors. The pattern reflects the inverse relationship highlighted in the Introduction: the regions with the strongest solar resources attract the least capital. The link to local currency financing is direct. The markets that attracted the largest share of investment in 2025, including the United States, Germany, India, and Brazil, are those where solar projects can be financed largely in domestic currency through well-developed banking systems and capital markets. By contrast, many sun-rich markets that attracted relatively little investment still rely on foreign-currency financing, often at higher cost and with significant currency risk exposure. In other words, solar investment tends to follow the availability of local-currency finance more closely than the availability of solar resources.

Figure 19 - Solar investments across ISA regions, 2025 (USD billion)



Source: BloombergNEF

⁶ These regional figures cover ISA Member Countries only: they are components of the ISA total of approximately USD 203 billion, not of the USD 436 billion global figure, which also includes non-ISA markets such as China, and they sum to the ISA total subject to rounding.

Box 2 - ISA Member Countries' Share of Global and Regional Solar Investment

**~USD 203
bn**

Solar investment in ISA
Member Countries

~46%

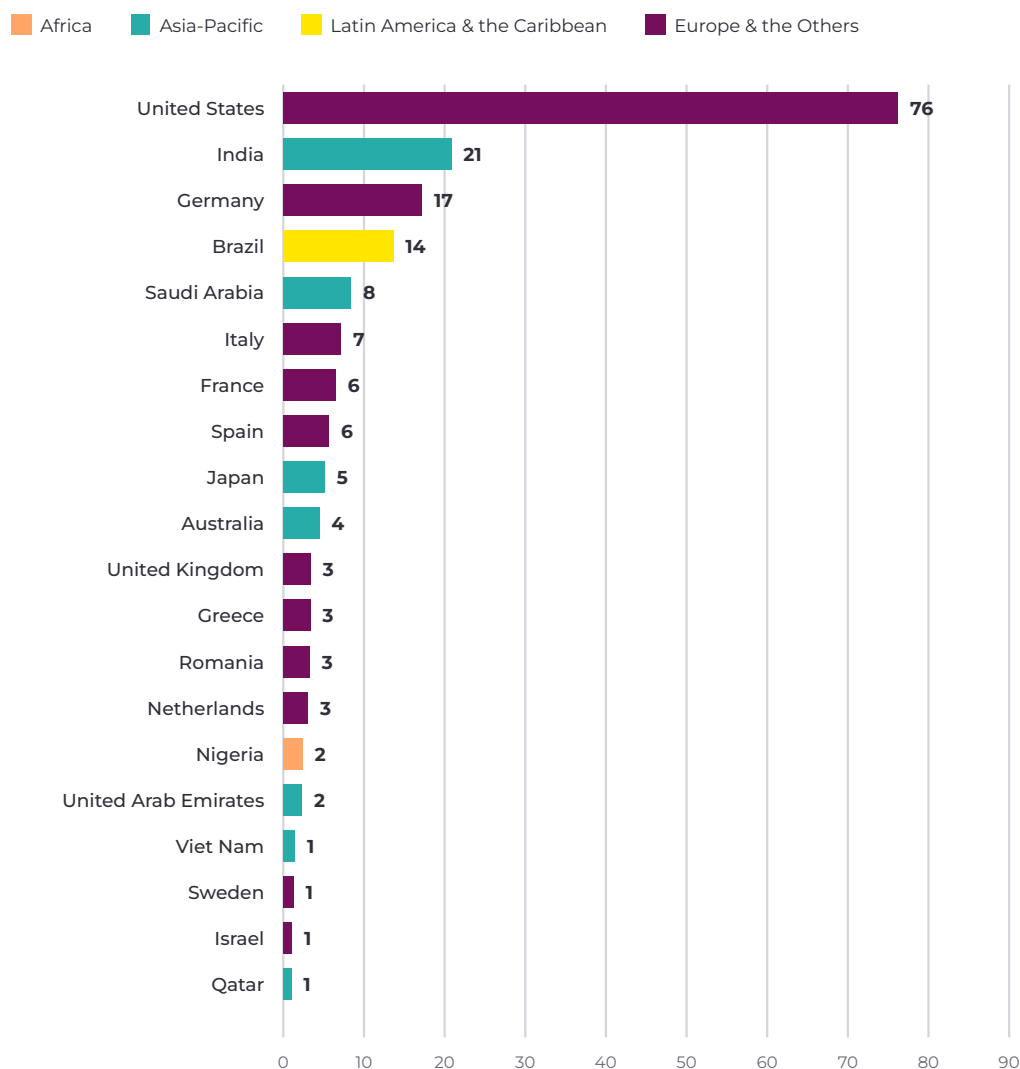
of global solar investment in
ISA Member Countries

~16%

of global solar investment
(USD 71 billion of USD 436
billion) went to ISA's Asia-
Pacific, LAC and Africa
regions

At the country level, solar investment is highly concentrated. A small group of developed members accounts for most of the total, while the larger group of sun-rich developing members each attract comparatively little. This gap between solar potential and capital mobilization lies at the heart of the ease-of-doing-solar challenge for many ISA countries.

Figure 20 - Top ISA Member Countries by investment, 2025 (USD billion)



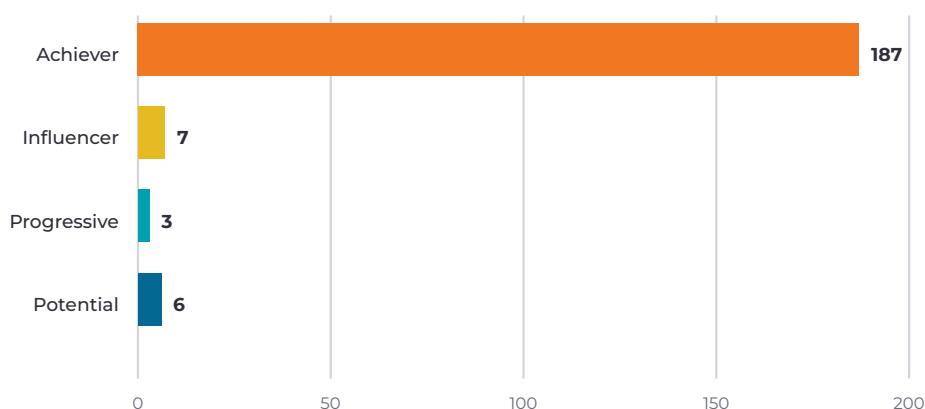
Source: BloombergNEF⁷

⁷ The chart includes countries that recorded solar investment of at least USD 1 billion in 2025.

The same pattern appears when ISA Member Countries are grouped into the four EoDS 2026 tiers – Achiever, Influencer, Progressive and Potential. Almost all the solar investment sits in the Achiever tier, at about USD 187 billion, which is roughly 92% of the ISA total. The other three tiers drew only about USD 16 billion: USD 7 billion in the Influencer tier, USD 3 billion in the Progressive tier and USD 6 billion in the Potential tier. In other words, more than nine in every ten solar dollars reaching ISA Member Countries went to a single tier, with the remaining three sharing about 8% between them.

Reading through the LCF lens, the tier distribution is not surprising. The Achiever tier scores highest on the Financing driver, with deeper credit markets, lower cost of capital and a wider local lender base, which is precisely what allows projects to be financed in local currency at scale. The Progressive and Potential tiers, where local-currency lending remains limited and foreign-currency borrowing common, face the greatest capital constraints despite accounting for a significant share of the solar resource across ISA Member Countries. By region and by tier, the same pattern points to the same constraint.

Figure 21 - Solar investments by ISA tiers, 2025 (USD billion)



Source: BloombergNEF

5.3 Drivers shaping solar investment in 2025

The single biggest factor was power-market reform in China, which moved more solar projects toward selling at wholesale prices instead of fixed tariffs. This made projects' returns harder to predict and slowed new financing. As a result, asset finance for utility-scale solar and onshore wind, which usually makes up about two-thirds of annual renewable investment, accounted for only half in 2025.

Outside China, several established countries ran into power-price problems. Rising curtailment (output switched off when the grid cannot absorb it), spells of negative prices, price cannibalization (solar pushing down the very prices it earns) and grid congestion reduced financing in countries such as Brazil, Spain, Greece, Türkiye and Poland. Costs, however, moved in solar's favour. The average capital cost of solar kept falling in 2025, while onshore wind costs rose and offshore wind costs stayed high. Because each dollar now buys more capacity, falling investment does not translate into an equal fall in build.

China and the rest of the world

China remained the largest single market for both renewable energy and solar, but the reforms there were the main reason global investment declined; China's overall renewable investment dropped about 35%. Outside China the trend was the opposite: renewable investment rose 11% in 2025. Solar was the largest sector outside China at USD 298 billion, and within that, utility-scale solar was down only 2% while small-scale solar rose 12%. In short, the global decline was largely a China story, and demand for solar across the rest of the world held up or grew.

The shift towards solar-plus-storage

The revenue problems facing standalone solar are pushing developers to pair solar with batteries, so that power generated in the middle of the day can be sold in the evening when it is worth more. This is already visible in the spending: the United States alone saw USD 10.8 billion of financing for co-located projects, the Middle East added USD 2.3 billion, and Chile and Australia also recorded sizeable co-located investment. This trend is expected to grow: the stationary battery industry in 2026 is at roughly the stage solar reached in 2020, and battery costs are falling faster than previously expected.

Solar deployment, manufacturing and the outlook

Changes in investment expenditure do not directly correspond to changes in installed capacity. Even as spending declined, solar installations kept rising; annual additions grew nearly ninefold, from 75 GW in 2016 to 655 GW in 2025. Solar now ranks alongside wind and nuclear among the largest sources of zero-carbon electricity, and on current central projections it becomes the single largest source of electricity of any kind by 2032.

Manufacturing is also spreading; China still makes most of the world's solar modules, but assembly is expanding in India, Southeast Asia, Egypt, Ethiopia and the United States.

Looking ahead, build is expected to stay near today's record rate rather than rise sharply over the next few years. The largest individual solar deals of 2025 give a sense of the scale now involved, including the USD 2.1 billion Al Khazna PV plant in the United Arab Emirates and a 3.6 GW module project in China.

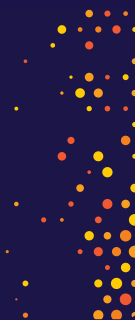
The picture from 2025 is therefore double-edged. Solar's global momentum is intact, with record capacity additions, falling costs and growth in most markets outside China; yet the capital behind that momentum remains heavily concentrated, and the sun-rich regions of the Global South still attract only a fraction of global flows. This concentration carries a cost that goes beyond a slower transition; in underserved markets (where capital has yet to arrive), it translates directly into energy-security exposure.

Capital is constrained by currency risk, weak off-taker creditworthiness and small project scale – not by solar potential. Where these barriers were addressed, investment followed, including in Potential-tier countries.



CHAPTER 6

06 Energy Security and Transition Pathways



IN THIS CHAPTER

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•	Key takeaways	104

The investment landscape showed where solar capital went in 2025; the question now is what is at stake where it did not. Energy security frames the cost of delays. Fossil fuel import dependence strains foreign-exchange reserves, currency depreciation raises the cost of hard-currency borrowing, and higher financing costs postpone the very solar investment that could reduce this exposure. This self-reinforcing loop is why LCF is not only an investment issue, but also an energy-security imperative. The operating condition for many ISA Member Countries is a polycrisis: climate shocks, energy shocks and fiscal shocks arriving together, in the same countries and in the same budget year. Solar, with storage and flexible transmission, is one of the very few responses that addresses climate, affordability and energy security at the same time, but only if it can be financed.

Against this backdrop, this chapter maps countries by two structural dimensions: their exposure to external energy dependence and their financial flexibility to respond. This helps explain why countries face different transition pathways, not because one pathway is inherently better than another, but because each country begins from a different combination of resource availability, energy-system structure, financial capacity and exposure to external shocks.

Every country enters the transition from a different starting point. Some can build on stronger economic fundamentals while still diversifying their energy mix; others already operate relatively clean power systems but face broader economic constraints that can limit the pace of investment and expansion. The transition is therefore shaped less by where a country is placed and more by the conditions from which it begins.

To capture these differences, the analysis maps all 127 ISA Member Countries across external energy dependence and financial flexibility with a third layer showing the dominant component in each country's energy mix. The goal is not to compare countries against one another, but to show how a shared ambition, expanding solar energy and strengthening energy sovereignty, can be pursued through routes tailored to each country's circumstances and strengths.

Why these two dimensions?

Recent energy shocks have shown that fossil fuel import dependence is not an abstract vulnerability. It transmits through energy prices, inflation, external balances and fiscal stability, making countries more exposed to global supply and price disruptions. This exposure defines the first dimension.

Yet exposure alone does not determine a country's transition pathway. The ability to respond depends on the depth of economic resources available to absorb shocks, mobilize investment and sustain long-term energy-system transformation. This response capacity defines the second dimension.

Together, the two dimensions capture the central tension of the transition: the gap between what countries need to do and what they are realistically able to finance and implement. While the EoDS classification shows how prepared a country is for solar deployment, this framework explains the constraints it faces and the type of transition pathway that may be achievable from its current position.

To position countries within the framework, each dimension was assessed using a set of quantitative indicators. The indicators used for each dimension are summarized below.

Table 16 - List of indicators used for the framework

Dimension	Indicators	Description
Energy Sovereignty (external energy dependence)	Diversity of total primary energy supply (TPES)	Measures the diversity of a country's primary energy supply. Greater diversity strengthens energy security and resilience by reducing reliance on any single energy source.
	Renewable generation share	Measures the share of electricity generated from wind, solar, hydro, bioenergy and other renewables. Higher values indicate greater integration of renewable energy into the power system.
	Net energy import dependency	Measures the share of a country's energy needs met through net imports. Higher values indicate greater reliance on external energy sources, while lower values reflect stronger energy self-sufficiency.
	Net electricity import dependency	Measures the share of domestic electricity demand met through net imports. Higher values indicate greater reliance on imported electricity, while lower values reflect stronger domestic generation capacity.
Financial Flexibility	5-year GDP growth rate (%)	Measures the average growth of a country's economy over a five-year period (2020–2025). Higher growth indicates stronger economic momentum and an expanding economic base to support investment.
	GDP per capita (PPP-adjusted)	Measures average economic output per person, adjusted for differences in the cost of living across countries. Higher values generally indicate greater economic prosperity and productive capacity.
	Fiscal deficit (% of GDP)	Measures the gap between government expenditure and revenue as a share of the economy. Lower deficits generally indicate stronger fiscal capacity and greater room to support long-term investments.
	Sovereign credit rating (S&P/Moody's)	Measures the perceived creditworthiness of a government based on its ability to meet debt obligations. Higher ratings indicate lower investment risk and stronger access to capital.

The selected indicators were aggregated to assess countries across two dimensions that reflect the core drivers of transition outcomes. These dimensions form the analytical foundation as defined below.

Table 17 - The two dimensions defined

Horizontal axis Energy Sovereignty	Vertical axis Financial Flexibility
This measures the extent to which a country's energy system relies on external markets rather than domestic production. Countries with greater dependence on imported fuels are more exposed to global price volatility and supply disruptions. Conversely, countries that meet a larger share of their energy needs through domestic renewable and other indigenous energy sources benefit from greater energy security and insulation from international market fluctuations.	This measures the overall strength and resilience of a country's economy. It captures economic momentum, fiscal capacity and sovereign creditworthiness, indicating the country's ability to mobilize investment and sustain long-term development. Rather than measuring energy performance directly, it reflects the economic foundation available to finance and enable the energy transition.

The third dimension: Energy system composition

The two axes establish a country's structural position. To complement this, the framework introduces a third dimension. The third dimension reflects the dominant energy sources in a country's overall energy mix. It is represented in the chart through four primary components, each mapped to a distinct colour:

Table 18 - Understanding the third dimension

Petroleum & Other Liquids	Coal	Natural Gas	Non-fossil (Nuclear and RE)
This includes crude oil and petroleum products, as well as other liquid fuels such as biodiesel, ethanol, liquids produced from coal, gas, and oil shale, Orimulsion, blending components, and other hydrocarbons.	This includes five coal types: anthracite, metallurgical, bituminous, subbituminous, and lignite, with production reflecting domestically mined coal.	This represents natural gas production, excluding non-hydrocarbon gases to ensure comparability across countries.	This combines nuclear energy, hydroelectric power, and non-hydroelectric renewable electricity, including solar, wind, and biomass.

The third dimension is most useful when read in context. The same energy mix can carry very different implications depending on whether a country is energy exposed or energy sovereign, and whether it has the economic capacity to respond.



Figure 22 - Energy Transition Pathways





Each profile pairs a short narrative with key signals from the chart, providing a scan-friendly view of energy exposure, renewable progress and strategic implications.

Australia

Australia is positioned as a relatively energy-secure economy, while also demonstrating strong economic fundamentals. This reflects high domestic resource availability, large reserves of coal and natural gas, and the investment capacity to scale clean energy systems. In 2024, renewables accounted for 36% of electricity generation, including 18% solar, 12% wind and 5% hydropower. The transition is increasingly supported by storage, with more than 450,000 household battery systems installed and grid-scale batteries shifting greater volumes of daytime solar into evening peaks.

During the Hormuz disruption, Australia's power market moved against the global trend. While LNG-linked markets saw upward price pressure, Australian wholesale electricity prices fell 30% year-on-year in H1 2026 to USD 49/MWh, the lowest level since 2020. The country's position shows how domestic resources, renewable deployment and storage can together reduce exposure to external shocks.

CHART SIGNAL

High energy sovereignty;
strong economic status

RE MIX

Renewables: **36%** of 2024
generation; solar: **18%**

STORAGE SIGNAL

450,000+ household battery
systems installed

RESILIENCE SIGNAL

Wholesale electricity prices
fell **30% YoY** in H1 2026

Takeaway: Australia shows that domestic resources, renewables and storage can work together to reduce exposure to global fuel shocks and strengthen power-market resilience.



Ethiopia

Ethiopia combines a developing economic status with a resource-rich energy profile. The country has built its power system around domestic renewable resources rather than imported fuels.

The Grand Ethiopian Renaissance Dam, inaugurated in 2025, adds 5,150 MW of capacity and helps lift total installed capacity beyond 9,730 MW. More than 95% of national generation capacity comes from clean sources, and Ethiopia exports electricity to Sudan, Djibouti, Kenya and Tanzania.

The key vulnerability is concentration in hydropower. Dry years have reduced hydro output by 20–25%, prompting Ethiopia's 2025 NDC and National Drought Resilience Plan to prioritize solar, wind and biogas. Solar is still small at around 15 MW grid-connected capacity, but the pipeline includes two solar IPPs, 29 mini-grid sites and a 10 MW floating solar project.

CHART SIGNAL

Resource-rich energy profile, constrained economic capacity

CLEAN POWER BASE

95%+ of generation capacity from clean sources

HYDRO CONCENTRATION

Dry years reduced hydro output by **20–25%**

SOLAR DIVERSIFICATION POST CRISIS

2 solar IPPs, 29 mini-grids, 10 MW floating solar

Takeaway: *Ethiopia shows that domestic renewables can reduce energy exposure even in low-income economies, but solar and wind are needed to reduce hydro-climate risk.*



Singapore

Singapore combines strong economic capacity with significant reliance on imported energy. The country has no domestic fossil fuel reserves and limited land for large-scale generation.

As a result, around 94% of electricity is generated from imported natural gas. During the Hormuz disruption, the Energy Market Authority cautioned that electricity and town gas prices could be affected, while wholesale electricity prices rose above SGD 200/MWh.

Singapore has used its economic capacity to develop the options available within physical limits. Installed solar capacity reached 2 GWp in 2025, ahead of schedule, with more than 80% deployed on rooftops. The target has since increased to 3 GWp by 2030, expected to meet around 3% of projected electricity demand.

CHART SIGNAL

High dependence on imported energy, strong economic capacity

EXPOSURE DRIVER

94% of electricity from imported natural gas

SOLAR PROGRESS

2 GWp installed in 2025; target raised to **3 GWp by 2030**

STRATEGIC INSIGHT

High income can absorb energy shocks, but imported gas dependence keeps energy security exposed.

Takeaway: Singapore shows that economic strength alone cannot ensure energy sovereignty where land and domestic energy resources are structurally limited.



Niger

Niger's energy dependence is driven mainly by imported electricity rather than imported fuels, placing it among the more exposed countries, a position compounded by its constrained economic capacity. Historically, supply from Nigeria accounted for approximately 87% of national electricity supply.

From 2023, electricity imports from Nigeria fell from around 80 MW to 46 MW, contributing to an estimated 30–50% decline in national electricity supply and scheduled outages across Niamey and other urban centres.

Niger also has one of the world's strongest solar resources. Since 2024, a 30 MW solar plant near Niamey has been commissioned, a 19 MW project is under development in Agadez, and a 200 MW project is under consideration. The distribution of 50,000 solar kits and projects across Niamey, Dosso, Tillabéri, and Maradi shows how domestic solar can reduce external electricity dependence while expanding access.

CHART SIGNAL

High dependence on imported energy with constrained economic capacity

DEPENDENCY DRIVER

87% of electricity historically supplied from Nigeria

SUPPLY SHOCK

Imports fell from **80 MW to 46 MW**; supply declined **30–50%**

SOLAR RESPONSE

30 MW commissioned; **200 MW** under consideration; **50,000 kits**

Takeaway: *Niger shows that reliance on imported electricity can create domestic supply shocks, even when exposure does not come directly from global fuel markets.*



Mozambique

Mozambique's position on the framework is notable. Despite relatively constrained economic capacity, it sits close to the energy-sovereign end of the dependency axis. This is largely due to its vast domestic energy resources, including an estimated 100 trillion cubic feet of natural gas in the offshore Rovuma Basin. As a result, Mozambique produces significantly more energy than it consumes and exports far more energy than it imports.

Yet Mozambique's position on the dependency axis tells only part of the story. While the country exports large volumes of energy, electricity access remains uneven. Domestic power supply is derived mainly from hydropower, and parts of the country remain poorly connected to the national grid. Electricity access is at around 37% with access reaching nearly 95% in Maputo City but remaining below 20% in provinces such as Niassa and Zambezia.

CHART SIGNAL

Strong energy sovereignty;
constrained economic
capacity

EXPORT PROFILE (2024)

Gas Export: USD 1.5 billion;
Coal Export: USD 1.2 billion

GRID CONSTRAINT

Power mainly hydro-based,
south-north grid
unconnected

ACCESS GAP

Electricity access ranges from
95% in Maputo City to below
20% in Niassa and Zambezia

Takeaway: Mozambique demonstrates that a country can have limited reliance on imported energy yet still face challenges in expanding electricity access.



● Japan

Japan occupies a relatively exposed position on the dependency axis despite being one of the world's largest economies. Its primary energy self-sufficiency rate stood at just 15.2% in FY2023 and 16.4% in FY2024, with more than 90% of its primary energy needs, including oil, coal, and LNG, met through imports.

This dependence increased following the 2011 Fukushima accident, with self-sufficiency declining from 20.2% in FY2010 to 15.2% in FY2023. Since then, solar capacity has expanded to 91 GW, contributing 13% of electricity generation in 2024. A further 5.8–6.0 GW was added in 2025, with installed solar capacity approaching 100 GW. Under Japan's Seventh Strategic Energy Plan, renewables are expected to provide 40–50% of generation by 2040, with solar accounting for 23–29%.

The Hormuz disruption highlighted this exposure. Japan's experience illustrates how even advanced economies can remain highly exposed to external energy markets when domestic energy resources are limited.

CHART SIGNAL

Significant reliance on imported energy; strong economic capacity

IMPORT DEPENDENCE

15.2% self-sufficiency (FY2023);
> 90% of primary energy imported

TRANSITION PATHWAY

91 GW solar capacity in FY2024; approaching 100 GW installed by FY2025

RESPONSE TO THE CRISIS

80 million barrels released from reserves; 1,356 MW reactor restarted

Takeaway: Japan presents a unique case in the framework: a technologically advanced economy with limited domestic energy resources. During the Hormuz disruption, releases from strategic oil reserves and the availability of existing dispatchable generation helped strengthen Japan's short-term energy resilience. Over the longer term, expanding solar and other domestic low-emissions energy sources can reduce dependence on imported fuels.



India

India sits in the middle of the energy dependency spectrum, reflecting a balanced but complex energy mix. The country has a strong domestic coal base, with production crossing 1 billion tons in FY2024–25. At the same time, it remains heavily dependent on imported oil and gas, with import dependence of around 80% for crude oil and roughly 50% for natural gas.

This mixed profile became evident during the Hormuz disruption. While the power sector remained largely insulated due to its reliance on domestic coal, the impact was felt through LPG shortages, higher fertilizer costs, and disruptions to gas-dependent industries.

India's solar equipment imports rose 141% year-on-year in March 2026. One month's import data cannot show a policy response, but the trend is consistent with strong momentum in the renewable sector. Together, these trends are helping India gradually reduce energy dependency and strengthen its long-term energy resilience.

CHART SIGNAL

Strong economy; balanced energy profile driven by domestic coal and renewables, and by imported oil and gas

IMPORT DEPENDENCE

Crude Oil – 80.4% | Natural Gas – ~50% | Coal – 18–24%

TRANSITION PATHWAY

132 GW solar capacity; >50% non-fossil installed capacity and >20% renewable generation in FY2025

RESPONSE TO THE CRISIS

141% year-on-year increase in solar imports (Mar 2026) and growing adoption of electric cooking alternatives

Takeaway: India's position reflects a dual reality: energy resilience from domestic coal, alongside continued exposure to imported oil and gas. The long-term pathway lies in electrification and renewable energy growth.

Key takeaways

The value of the framework lies not only in where countries are positioned, but in what that position reveals for action. By combining a country's energy-transition needs with its economic capacity to respond, the framework helps identify which approaches are likely to be most effective in different contexts. Rather than serving as a static classification, it provides a practical lens through which governments, investors, development partners, and policymakers can better understand the opportunities, priorities, and pathways available to each country.

In this way, the framework moves the discussion beyond diagnosis and toward decision-making. It highlights how different starting conditions shape different transition strategies, helping stakeholders identify where support, investment, and policy interventions can have the greatest impact.

Table 19 - What each position on the map asks of each actor

Government & Policymakers	For governments, the analysis helps identify whether the priority is reducing energy exposure, system integration or market deepening. Germany, for example, has 100% electricity access in 2024, low T&D losses of 5% in 2023, and solar contributing 15% of total generation in 2024. Yet net energy imports remain high at around 72% of energy use in 2022. Its policy priority is therefore less about basic deployment readiness and more about system integration, flexibility and grid balancing for a higher-renewables power system.
Investors & Financiers	For investors and financiers, the framework distinguishes commercially mature markets from those where risk-sharing is still needed. Viet Nam shows strong demand-side growth, with around 10% annual electricity demand growth in 2024, but also higher financing needs, with solar cost of capital at around 8.5–11.5%. Such markets offer scale and demand, but investors may still require blended finance, guarantees or local-currency structures to improve bankability.
ISA	For ISA, the analysis helps target support according to each country's binding constraint. Nigeria combines electricity access of around 63% in 2024 with solar contributing less than 1% of total generation in 2024, and a high solar cost of capital of around 15–18%, pointing to a need for project preparation, blended finance, payment-risk mitigation and LCF structures. Singapore, in contrast, has very low T&D losses of 0.23% in 2023 and lower solar financing costs of around 5–7%, but remains highly energy exposed, with net energy imports at around 258% of energy use in 2022 (a figure above 100% reflects Singapore's role as a refining and bunkering hub, which re-exports much of the energy it imports) and solar contributing only around 2% of generation in 2024. ISA's role there is less about basic market creation and more about supporting storage, demand management, regional clean-energy integration and system flexibility.
Utilities	For utilities, the framework distinguishes markets where the priority is integrating higher renewable penetration from those where reliability and bankability must first improve. In Germany, utilities should focus on grid flexibility, balancing and integration of variable renewables. In Botswana, with electricity access at around 80% in 2024, T&D losses of around 21% in 2023, solar contributing only around 0.3% of total electricity generation in 2024, and no recorded solar investment in the model, the utility priority is to reduce losses, improve grid readiness, strengthen offtake credibility and create conditions for bankable solar procurement.

Taken together, the framework transforms a snapshot of where countries stand today into a roadmap for where they can go. It demonstrates that there is no single pathway to the energy transition. Countries begin from different economic circumstances, face different forms of energy dependence, and possess different resources with which to respond. Yet across all countries, one common message emerges: progress depends less on a country's current position and more on how effectively it builds on its existing strengths and addresses its most critical constraints.

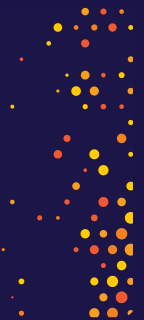
Understanding a country's position, however, is only the first step. The value of the framework lies not simply in diagnosis, but in informing action. Once governments, investors, utilities, and development partners understand the opportunities and constraints that define a country's starting point, the focus shifts to identifying what can realistically be built, financed, and scaled next. The transition therefore moves from understanding where countries stand today to determining the practical measures needed to accelerate progress. Every country has a viable pathway forward; the challenge is to match ambition with readiness and align stakeholders around the actions needed to unlock progress.



07

CHAPTER 7

Call to Action – Way Forward



IN THIS CHAPTER

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The argument of this report has moved in layers: from the premise that energy security now compels the solar transition, through the classification of 127 Member Countries and the diagnosis that local currency financing is the binding constraint, to the evidence of where capital flowed in 2025 and the energy-transition mapping that shows what is at stake where it did not. What remains is the path: matching each readiness tier with the solar models, policies, and financing structures realistically within reach, and setting out who must do what for solar investment to become bankable, locally financed, and scalable.

What the findings tell us and where the opportunities lie

For most of the world, solar is now the cheapest way to generate electricity; across much of the Global South, it is not, and the reason is rarely a lack of sunshine, technology, or willingness. Because nearly all solar's cost is incurred upfront, its price depends heavily on the cost of finance: where borrowing is cheap, solar wins on price; where it is expensive, an identical project struggles to compete. The technology argument has been won: module prices have fallen by around 90% since 2010 and solar works wherever it is built. The argument not yet won is the finance argument, and for a capital-cost asset that is the argument that decides the tariff. The same project, built to the same standard, carries a different tariff in different countries; that gap is not engineering, it is risk pricing.

Layered onto this is the currency mismatch diagnosed earlier, and the self-reinforcing loop in which fuel-import dependence weakens the currency and makes borrowing for clean energy costlier still. The disruption around the Strait of Hormuz in early 2026 showed how costly that dependence can be; solar and storage, once built, are largely insulated from it. The greatest opportunities lie where the need is most acute. The *Progressive* and *Potential* countries combine the strongest sunshine, the largest unmet demand for electricity, and the least-developed ways of paying for it, making them both the most challenged and the most promising countries for solar expansion.

The evidence points one way

The EoDS results point one way: ambition and resource potential are widely present, but financial conditions determine whether projects move from intent to execution. Financing, however, is not the starting point. Utility-scale solar first requires procurement, while DRE applications depend on enabling frameworks and viable deployment models. Financial conditions then determine whether these opportunities can attract capital and reach implementation. The four findings below trace this from cause to consequence, from constraints in the availability and cost of capital, through market frictions, to the resulting distribution of investment.

1 Finance, not resources or ambition, separates the tiers:

Most countries (over 92% of ISA Member Countries) have made climate commitments, and many least-developed countries have some of the strongest solar resources. Yet higher solar irradiation does not automatically translate into higher readiness. Several African countries receive more sunshine than Nordic countries, but weaker access to affordable and appropriately structured finance limits deployment. The deciding factor is therefore not sunlight or ambition alone, but whether capital is available at a viable cost and in a currency that matches project revenues.

2 The cost of borrowing is among the most decisive factors:

The cost of loans varies widely, and this difference alone makes solar much more expensive and can even stop viable projects from moving forward. Two distinct factors sit behind this and need to be separated. The first is the availability of local currency lending: whether domestic banks and institutional investors can lend to solar at all, and at what tenor. The second is foreign-exchange risk: where local lending is absent and projects must borrow in dollars or euros, the cost of hedging, or the unhedged exposure itself, is added on top. These high costs are mainly due to perceived risk, including country and sovereign risk, so solutions like guarantees and risk-sharing are often more effective than simply lowering interest rates. The realistic target for the highest-cost markets is not the lowest financing rates of around 3% seen in advanced economies but the 6.0–8.5% range achieved in emerging economies such as Malaysia, Thailand and the Philippines. These markets have reached this level through local financing and risk-sharing models suited to their conditions, rather than by replicating advanced-economy financial systems or relying entirely on international guarantees.

3 Currency and market reforms tend to work best together:

In countries where the currency is steadily losing value, a loan denominated in dollars can quickly become unsustainable. In Egypt and Zambia, the currencies fell by about 22% and 15% respectively during 2019–2024, while only around a third of PPAs in their tier are written in local currency, leaving projects exposed. Where the buyer is weak, payment risk is often passed into tariffs or absorbed by the state, discouraging private investment. Two measures tend to be most effective in combination: lending in local currency and managing currency risk, alongside strengthening market foundations that make revenue streams dependable, such as a buyer that pays reliably, a functioning power market, and fair, standardized procurement.

4 Investment flows to where capital is cheapest, not where the resource is richest:

Of roughly USD 203 billion of solar investment reaching the ISA Member Countries in 2025, about 92% (~USD 187 billion) went to the most advanced group alone, while the other three groups shared around 8% between them. India alone attracted around USD 21 billion, much of it raised through green bonds, while the sun-rich countries in Africa and the Pacific, which combine the strongest sunshine with the largest unmet demand, received the least. The opportunity ahead is less about increasing the total amount of finance, and more about directing it toward where the sun, the demand and the need converge.

From evidence to application-level action

Experience with the solar programmes most often held up as exportable carries a warning here. Solar irrigation and rooftop schemes have scaled where five things sat beneath them: an off-taker able to sign and honour a contract; incentives delivered directly to the beneficiary rather than through intermediaries; a national digital platform that makes the programme transparent; a vendor and service network deep enough to repair a system far from the nearest town; and sustained political will. In most partner countries at least two of the five are missing, and the result is familiar: the scheme is announced, the hardware arrives, and within a few years the systems stand idle. The failure is rarely in the design of the scheme; it is in the enabling systems the scheme assumed were already in place. Programmes cannot simply be exported; the ecosystem beneath them must be built, and a project is only as strong as its weakest pillar, which differs by country.

After the four findings, the report's next question is practical: if finance, market readiness and energy-security exposure shape the pace of solar deployment, which solar applications should countries prioritize first? The answer cannot be the same for every country. Different starting points require different application choices, different enabling systems and different levels of policy and financing support.

This is where the SOLARISE Matrix is introduced. It connects the report's diagnosis with implementation by helping countries move from broad solar ambition to a more practical assessment of what can be scaled now, what needs supporting systems, and what should be prepared for later.

The earlier analysis showed that countries enter the energy transition from different starting points. Some remain exposed to imported fuels or electricity, some have strong renewable resources but limited financial capacity, and others have stronger economic fundamentals yet continue to depend on external energy markets. These differences make solar planning a question of fit: which applications can strengthen energy sovereignty today, and which require stronger systems before they can scale.

Which solar applications fit which market today

Solar is no longer limited to utility-scale generation or rooftop systems. It now includes irrigation, water heating, mini-grids, cold chains, productive-use loads, industrial heat, mobility, storage, hydrogen and other emerging applications, each with a different level of maturity and required enabling conditions.

This creates a practical prioritization challenge. A country may be ready to scale one application immediately, while another may require better grid readiness, storage, offtake certainty, financing, local capacity or technology maturity. Without a structured lens, countries may either focus too narrowly on familiar applications or allocate scarce resources to applications that are not yet practical in their context.

The **SOLARISE Matrix** has been developed as a practical decision-support framework to help ISA Member Countries and stakeholders think through which solar deployment opportunities are most feasible and cost-effective today under local conditions, which require additional system pathways, and which remain longer-term opportunities. It presents a curated set of representative solar-powered and solar-enabled applications, arranged from mature and immediately deployable use cases to applications that require further cost decline, ecosystem development or technical validation. It is not intended to be an exhaustive list of all possible solar use cases. Instead, it focuses on applications that are relevant for policy design, investment prioritization, market development and country-level solar deployment planning.

In this Matrix, ‘application’ is used in its decision-making sense: any solar-powered or solar-enabled use case that requires a distinct feasibility assessment, system pathway, business model and procurement route. The list therefore spans end-use applications (e.g., irrigation pumping, cold storage), deployment formats (e.g., floating PV, agrivoltaics), supply configurations (e.g., evening peak supply, round-the-clock supply, multi-day balancing) and procurement-linked models (e.g., corporate PPAs using third-party grid access, shared captive-generation structures). These are listed together because each requires its own deployment decision, and each can sit at a different feasibility level even where the underlying PV technology is identical.

What the eight SOLARISE levels mean

The eight SOLARISE levels group solar deployment opportunities according to their current readiness and the principal factor affecting wider adoption. Each level reflects a distinct deployment condition or barrier and therefore implies a different policy, investment or market response.

The levels represent a qualitative assessment and should be viewed as distinct readiness categories rather than a ranking of opportunities.

- **Scale now to Advance selectively (S-O-L-A):** Applications that are deployable today, subject to varying technical, system, market or economic conditions.
- **Reduce cost first and Incubate (R-I):** Applications with future potential that require stronger commercial viability, ecosystem development, validation or policy support.
- **Standby and Evaluate later (S-E):** Applications that are technically possible but currently offer limited deployment value compared with available alternatives.



Table 20 - Definition of the SOLARISE levels

Levels	What does it mean?
S – Scale now	Applications that can be scaled immediately, given their proven technological performance and cost competitiveness in the majority of geographies.
O – Optimize	Applications with proven technological readiness that are deployable under specific market and operational conditions, rather than universally across all geographies.
L – Link with add-ons	Applications that require additional system integration measures, such as storage or hybrid supply, to become practical and scalable.
A – Advance selectively	Applications that are deployment-ready in select geographies, with wider adoption dependent on supportive market and policy conditions.
R – Reduce cost first	Applications that are promising in the long term but require stronger commercial foundations, supporting infrastructure, and scalable business models to achieve widespread adoption.
I – Incubate	Applications that require further technology validation, ecosystem development, and policy support before they can be deployed at scale.
S – Standby	Applications that are technically feasible but remain niche opportunities, warranting monitoring rather than prioritized deployment where simpler and more cost-effective alternatives are available.
E – Evaluate later	Applications with weak current deployment prospects that are best viewed as longer-term opportunities for research, pilots, and periodic reassessment.

How to read the legend – primary system pathways

Each application on the Matrix carries two independent signals that should be read together. The SOLARISE level indicates how ready the application is and the principal barrier to its wider deployment. The border colour identifies the **primary system pathway** that principally determines its practical deployment beyond the solar generator itself.

- **SOLARISE** level indicates the readiness of an application and the principal barrier to wider deployment.
- Some applications may require additional supporting systems depending on local market conditions.
- The level and colour should be read together to understand both the readiness of an opportunity and the conditions needed for successful deployment.



Table 21 - Legend of the SOLARISE Matrix

Legend category	Colour	How to interpret it
No additional system – direct daytime use		Primarily uses solar generation during daylight hours without major storage or firming requirements.
Grid interface & evacuation		Feasibility depends principally on grid connection, evacuation, power-purchase arrangements, net metering, open access or market settlement.
Short-duration electrical storage (BESS)		Battery support for reliability, backup, load shifting, evening supply, night-time use or off-grid operation.
Thermal pathway – solar heat / CSP + thermal storage		Solar heat, concentrated solar power, steam, cooling or thermal storage to deliver required energy service.
Long-duration balancing		Longer-duration or multi-day supply requires pumped hydro, compressed-air, flow, gravity or other long-duration storage solutions.
Hybrid renewable supply – solar + wind + storage		Solar is combined principally with wind, storage or another generation source to extend supply availability and reliability.
Hydrogen conversion pathway		Solar electricity enables hydrogen, ammonia, e-fuels or other hydrogen-linked pathways.

The SOLARISE level and colour should therefore be read together. The level indicates how ready the opportunity is and the principal constraint to wider deployment, while the colour identifies the system pathway most central to its practical operation.



Caveats for interpreting the Matrix

- The Matrix provides a macro-level analysis based on available evidence and should not be interpreted as a fixed ranking of countries or projects.
- The Matrix assesses a curated set of solar deployment opportunities, including end-use applications, deployment formats, supply configurations, and selected market or procurement models. It is not an exhaustive catalogue.
- The Matrix is presented in a top-down format to highlight applications that are currently the most readily deployable and actionable. The ordering reflects relative readiness and enabling-condition requirements rather than a prescribed pathway of country progression.
- The SOLARISE levels are based on a qualitative, multi-factor assessment and do not represent numerical scores. The levels should not be interpreted as a simple ranking from best to worst. They identify the principal readiness condition or deployment barrier associated with each opportunity and indicate the type of response required.
- The global placement provides a reference point rather than a universal prescription. Country-level suitability may vary according to resource quality, demand profiles, tariffs, grid conditions, storage costs, cost of capital, land availability, policy support, offtake certainty and supply chain.
- The SOLARISE Matrix is intended as a flexible reference and is not designed to classify, rank or assign countries to fixed positions. Instead, it supports country-specific interpretation and prioritization based on local circumstances and development objectives.
- The colour legend indicates the primary system pathway typically required for practical deployment; several applications may also require additional supporting systems in specific markets.
- The Matrix reflects current technical maturity and practical feasibility. Applications may move upward or downward over time as technology costs, policy frameworks, business models and deployment experience evolve.



Examples of how applications have been classified

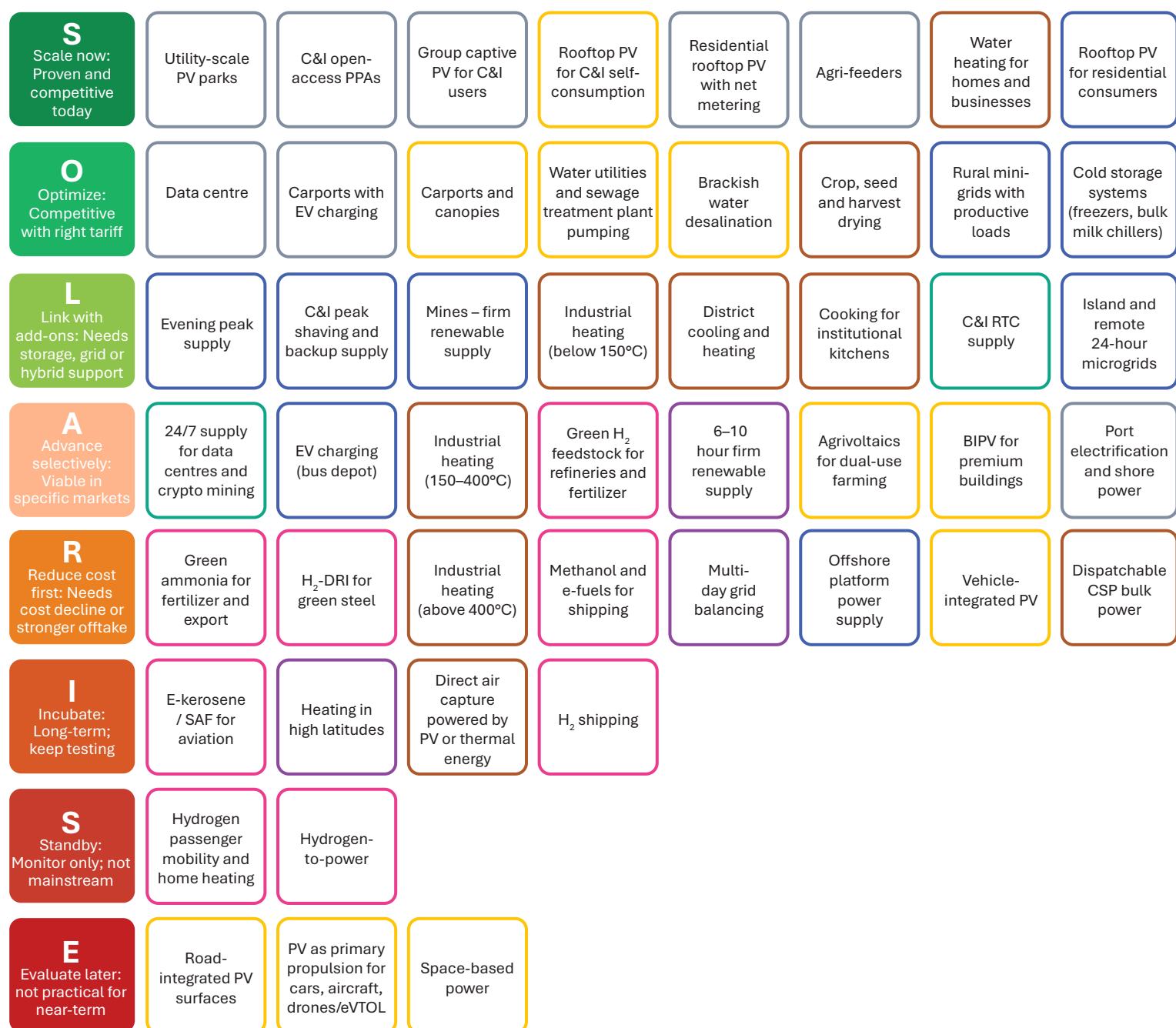
The examples below show the type of reasoning used across the Matrix. They are included to make the classification logic transparent for review.

Table 22 - Examples from the SOLARISE Matrix

Solar application	Category	Why this category	Enabling-system rationale
Utility-scale PV parks	Scale now	This application is mature, widely deployed and technically well understood. Where land, grid access and offtake are available, it can scale quickly.	Grid interface & evacuation: The application depends on grid connection and evacuation to deliver power at scale.
Floating PV on reservoirs and water bodies	Optimize	The deployment form is proven, but site conditions matter. Anchoring, water-level variation, evacuation and maintenance affect practicality.	Grid interface & evacuation: The main requirement is to evacuate power from the water-based installation into the electricity system.
Island and remote 24-hour microgrids	Link with add-ons	PV alone cannot provide continuous supply. The application becomes practical when generation is combined with storage, controls, demand management and an appropriate microgrid design that aligns supply, load requirements and remote-system operation.	Short-duration electrical storage (BESS): Storage supports reliability beyond daytime generation and helps meet evening and night demand.
Green H2 feedstock for refineries and fertilizer	Advance selectively	Industrial demand already exists, but deployment depends on electrolyzers, water availability, policy support and bankable offtake.	Hydrogen conversion pathway – electrolyser to H2 and derivatives: The conversion chain is central to producing hydrogen from solar electricity.
Vehicle-integrated PV	Reduce cost first	Vehicle surfaces can support auxiliary power needs or limited range extension, but constrained surface area and variable exposure limit wider relevance.	No additional system – direct daytime use: The application uses sunlight on vehicle surfaces, but only as complementary support.
Road-integrated PV surfaces	Evaluate later	The concept is technically possible, but durability, traffic loading, shading, cleaning, maintenance and lower yield make it less practical than conventional PV today.	No additional system – direct daytime use: The application attempts to generate electricity from exposed transport surfaces, but practical limitations remain significant.

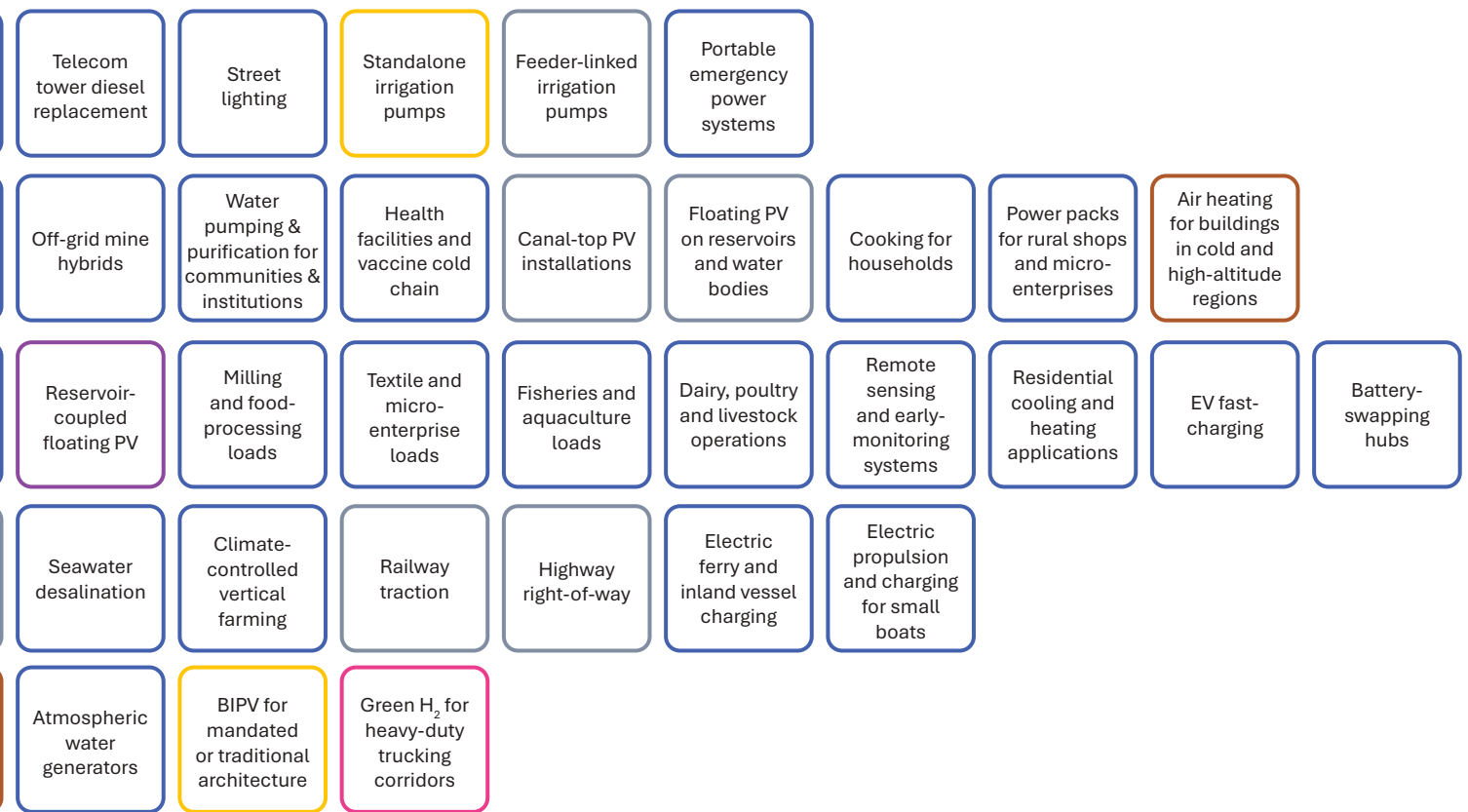




Figure 23 - SOLARISE Matrix – solar application feasibility pathway**Note:**

The Matrix presents a curated set of representative solar-powered or solar-enabled applications, not an exhaustive list. Applications have been selected to cover major use cases across power generation, distributed energy, productive use, industry, mobility, storage, hydrogen and emerging technologies.

The placement of solar applications reflects the author's analysis of technical feasibility and macro-level deployment practicality. Actual positioning may vary by country depending on solar resources, grid reliability, tariffs, diesel prices, storage costs, the cost of capital, land availability, incentives, and offtake certainty.



Each solar-based application below is positioned by technical maturity and practical feasibility; border colours show its primary system pathway — from direct daytime use to grid, storage, thermal, hybrid and hydrogen pathways.

- No additional system – direct daytime use
- Short-duration electrical storage (BESS)
- Long-duration balancing
- Hydrogen conversion pathway
- Grid interface & evacuation
- Thermal pathway – solar heat / CSP + thermal storage
- Hybrid renewable supply – solar + wind + storage

The Matrix's value lies in helping governments, regulators, utilities, developers, financiers, manufacturers, philanthropies, catalytic-capital providers and development partners identify where action can begin, where enabling systems must be built, and where future options should be monitored. It provides a practical guide for prioritizing reforms, investments, project development and market-building measures according to each country's level of readiness.

The transition from diagnosis to action begins when countries can see not only why solar matters, but which applications are most relevant today and which may define the next phase of solar adoption.

Who needs to do what

Progress rarely comes from one big change; it builds when separate actions start to connect. The case studies in this report show that bankable solar projects depend on five linked conditions: borrowing in the currency a project earns, risk-sharing support, secured offtake, clear rules, and domestic capital mobilization.

A tariff reform improves investor confidence, a guarantee changes how lenders price risk, a reliable off-taker makes long-term contracts viable, and deeper local financial markets allow capital to be raised at scale. No single stakeholder can complete this chain alone, and each has a role to play. The calls to action below set out where each stakeholder must act, and where the first steps should begin.



Governments:

Governments play a central role. That role begins before finance. Governments must first bring projects and investment opportunities to market, whether through competitive procurement for utility-scale solar or enabling frameworks for DRE and BESS, before any of the conditions discussed below come into play. Without a project pipeline, there is nothing for financiers to support. Tariffs that reflect the true cost of power supply, paired with protection for poorer households; projects rewarded through transparent, competitive processes with clear contracts; and, importantly, an early decision on who will bear the loss if the currency falls – together, these give lenders the confidence to take part. Ghana illustrates why these matter: its losses exceed 30%⁸, and the sector faces annual financial shortfalls exceeding USD 1 billion, with recent estimates reaching about USD 2.2 billion in 2025⁹, so cost-reflective tariffs, lower losses, cleared arrears and open auctions with standard contracts would do much to restore confidence. Sri Lanka points in a similar direction: private developers built most of its renewable capacity only after the off-taker became more dependable, supported by regular tariff adjustments, utility restructuring, and transparent, rules-based procurement. In Bangladesh, the central issue is less a lack of policy than how risk is shared, which is why setting out clearly who carries currency and payment risk, through a local-currency risk-sharing package, is a natural early step.

⁸ <https://businessweekghana.com/ecg-lost-gh%C2%A232-for-every-gh%C2%A2100-spent-to-procure-electricity-in-2024-the-highest-since-2000/>

⁹ <http://ghanaweb.com/GhanaHomePage/business/Ghana-s-energy-sector-shortfall-to-hit-2-2-billion-by-December-2025-IMF-report-1991586>

Two further tasks fall to governments. The first is institutional. In many Member Countries the binding constraint is not the tariff but whether the system can procure what it now needs: a regulator that has never run a storage tender cannot procure storage; a mini-grid that will one day meet the main grid needs a tariff category that does not yet exist; the variable share now being added needs a grid code written for it. Payment security, cost-reflective tariffs and an independent regulator are not reforms adjacent to a solar programme; they are the solar programme. The second is structural: placing a creditworthy central procurement or offtake agency between developers and distribution utilities, so that the risk a lender prices is not that of the weakest off-taker. This is a structure, not a subsidy, and it is exportable; India's tariffs fell because procurement was standardized, utility dues were put on an enforceable schedule and a developer knew what contract it was signing before it bid.



Utilities, system operators and sector regulators:

Every megawatt of solar has to be evacuated, and in many Member Countries the grid, not the generator, is the binding constraint. Transmission must be planned alongside generation rather than after it: a transmission line can take 48 to 60 months to build, while a utility-scale solar plant can be completed in about 24, so a grid planned only once the pipeline is visible is a grid that arrives two to three years late. Storage and distributed generation complement it, easing congestion and delivering power closer to demand. Solar without storage is an energy resource, not a capacity resource. Storage has to be contracted before it can be built, and what makes it contractible is a tariff that pays for firm capacity rather than for energy, together with technical standards and fire-safety codes that let insurers and lenders price the asset; without these, storage remains a policy target rather than a bankable class of project. As distributed solar grows, a grid that once tracked a few hundred assets must track millions: every rooftop, every pump, every battery is a generating asset, a metering point, a maintenance obligation and a credit exposure. That is not a bigger control room; it is forecasting at feeder level, real-time monitoring, automated dispatch and performance verification for the lender who has financed tens of thousands of small systems, which is where the digital layer meets local currency financing directly. The 2027 edition of EoDS takes this up.





Local banks and institutional investors:

Local banks and institutional investors are well placed to contribute. Offering solar loans in local currency, bundling many small projects into fundable portfolios, issuing domestic green bonds, and gradually adjusting the rules that keep pension and insurance money on the sidelines could together unlock considerable funding. ACOB in Nigeria offers an example: it raised a seven-year bond in naira, the same currency its mini-grids earn, and placed it with local pension and insurance funds, supported by a top-rated guarantee and a first-loss buffer that gave those investors comfort. Órigo in Brazil brought 22 separate solar projects into a single fundable package and borrowed in Brazilian reais, so repayments move with what the plants earn. The potential is considerable: in Nigeria more than 63% of pension money sits in government bonds, and Kiribati's sovereign fund, equivalent to around 330% of its economy, is among the Pacific's most underused sources of solar finance, where even a modest change in mandate could make a substantial difference. Asset monetization and infrastructure investment trusts (InvITs) belong in the same toolkit: by recycling capital out of operating solar assets and back into new construction, they lower the cost of that capital and give pension funds and insurers the standardized, income-producing instrument they are able to hold, which is the route ISA's Global Solar Facility is taking to attract institutional capital.



Central banks and financial regulators:

The largest domestic capital pools cited in this report — Nigeria's pension assets, Kiribati's sovereign fund — are governed by investment mandates that only their own authorities can revisit, not constrained by a shortage of projects. Regulators can review prudential and investment-mandate rules so that long-tenor renewable lending and infrastructure allocations by pension and insurance funds are treated on their merits; publish clear criteria for green bond and green loan classification; and, where currency risk is the binding constraint, work with finance ministries to establish or backstop local-currency hedging and liquidity facilities. None of these steps requires public spending; each changes what domestic capital is permitted to do. Common taxonomies and standard project templates, agreed across markets, would let distributed solar projects be assessed once and financed many times, without lengthy re-diligence in each jurisdiction.



Domestic guarantee institutions and credit enhancers:

In Chapter 4, the ACOB transaction in Nigeria closed because a guarantor, InfraCredit, stood behind it. Countries without such an institution lack the risk-absorbing layer that lets pension funds and banks hold solar assets. Establishing or capitalizing national or regional guarantee vehicles, with DFI counter-guarantees where needed, and standardizing their instruments across markets would convert one-off successes into a repeatable channel for domestic investment.



Standards bodies and regional economic communities:

A solar cell, a battery or an inverter certified in one market should be accepted in the next without re-testing. Harmonized certification is the most cost-effective industrial policy available to solar markets and the one used least: it turns twenty small national markets into one regional market that a factory, a lender or an insurer can plan against. Not every country can build every factory, nor should it try; energy sovereignty comes from regional value chains, pooled demand and diversified supply. Regional economic communities and national standards bodies can agree mutual recognition of solar and storage equipment certification, adopt common fire-safety and grid-connection codes for storage, and standardize procurement documents and contract templates so that a project bankable in one member market is bankable in its neighbours.



Development finance institutions and multilateral development banks:

DFIs and MDBs can shift the balance by using their capital to reduce risk rather than only providing direct lending. Guarantees, first-loss capital, currency-risk support, project aggregation and carbon pre-finance can help draw local lenders into markets they may otherwise avoid. Scatec's solar-and-battery project in South Africa shows how rand-denominated finance, DFI participation and a long-term offtake contract can make dispatchable renewable power bankable. SunCulture in Kenya shows how carbon pre-finance can reduce upfront costs for farmers and support productive-use solar. For smaller island countries, portfolios of small public and island solar projects may be more financeable than isolated one-off projects when backed by guarantees, first-loss capital and political-risk insurance. The same applies to distributed solar more broadly: aggregated capital structures that pool mini-grid, solar-irrigation and cold-chain assets into portfolios backed by first-loss capital and, where currencies are volatile, state- or DFI-supported foreign-exchange cover reduce per-transaction costs and give institutional investors the ticket size they require.

MDBs can combine projects from several countries into regional portfolios or platforms. This aggregation creates the scale that smaller markets may not achieve individually and spreads the country and currency risks across the portfolio. As a result, guarantees and hedging become more affordable for all participants, while the larger investment size can attract institutional investors that may not consider individual country-level projects. The principle that should govern all of this is that public money must stop competing with private money and start unlocking it: blended structures, risk-mitigation facilities, guarantees, first-loss tranches and currency hedges, rather than direct lending that displaces the domestic lenders this report seeks to bring in. The developing world outside China received about 15% of global clean-energy finance in 2025. That figure describes an architecture gap, not a financing gap, and it is the architecture that DFIs and MDBs are best placed to fix.



Philanthropies and catalytic-capital providers:

Philanthropic foundations rarely invest directly in commercial project debt, but their grant capital is the most catalytic layer in the structures this report describes, because it can absorb the first loss that no commercial lender will take. Three uses follow directly from the findings. First, an FX de-risking facility: grant-funded first-loss tranches and local-currency hedging capacity targeted at Potential-tier markets, where capital costs around 16%, with the explicit objective of bringing financing costs into the 8.5–11.5% range already achieved by stronger Influencer-tier markets such as Morocco, Mauritius and Viet Nam. Second, DRE pipeline-aggregation hubs: technical-assistance grants to bundle small-scale solar irrigation, cold-chain and mini-grid projects into standardized, aggregated portfolios that domestic banks and institutional investors can finance, building on the ACOB and SunCulture models. Third, joint analytical products with the World Bank, the African Development Bank, the Asian Development Bank and the European Bank for Reconstruction and Development on how sovereign guarantees can be shifted from backing hard-currency power purchase agreements towards supporting domestic bank liquidity for local-currency lending, addressing the currency mismatch at its source rather than insuring against it. ISA's Catalytic Finance Hub provides a natural platform for structuring such partnerships.



ISA:

ISA sits at the intersection of diagnosis and delivery, and EoDS 2026 strengthens that link. Through the CPF/CPS process, the findings can pinpoint each country's binding constraint, prioritize the solar and DRE applications best suited to its circumstances, and identify the reforms and actions most likely to accelerate deployment. In doing so, the assessment moves beyond benchmarking to provide a practical basis for country-level engagement and implementation. Tailored policy roadmaps, built on each country's tier, driver profile and priority SOLARISE applications, would give finance and energy ministries a benchmark of where they stand and a sequence of next reforms.



Four further roles would extend ISA's impact. First, ISA can help translate country priorities into coordinated action by convening governments, financiers, development partners and private-sector stakeholders around shared delivery objectives. Second, regional benchmarking can evolve into structured peer-learning partnerships, allowing countries to adapt proven reforms and implementation approaches from comparable markets. The four-tier taxonomy provides a practical basis for this. Pairing countries across tiers gives tailored roadmaps a delivery channel: Potential-tier countries such as Chad, Eritrea and Nigeria could be paired with Influencer-tier peers such as Senegal, Morocco and Viet Nam, and with Achiever-tier peers such as Brazil and India, to transfer specific local currency financing structures, green bond frameworks and utility off-taker reforms, in the same way that the regional LCF benchmarks in Chapter 4 pair each CPF/CPS country with Morocco, Australia or Chile. Third, ISA can convene Member Countries and regional development banks around the design of South-South foreign-exchange risk-pooling mechanisms, so that the growing volume of Global South capital reaches solar projects in the currency of their revenues rather than through US-dollar or euro intermediaries. Fourth, ISA can package the report's findings into curated briefs for philanthropic and catalytic-capital partners, whose grant capital is best placed to fund the first-loss tranches, hedging capacity and pipeline-aggregation support that commercial lenders will not provide. Together, these functions can help countries move more quickly from identifying opportunities and constraints to delivering projects and outcomes on the ground.

Beyond these, five delivery instruments already in ISA's hands bear directly on the constraints:



First, aggregation:

through the ISA–World Bank SIDS Platform, 19 island nations are pooling procurement, digital integration and capacity building to secure pricing that small markets cannot reach alone, with a first aggregated tender of 220 MW under way with the Government of Mauritius and more than USD 1 billion of projects assembled into a single pipeline across 18 small island states; the same logic extends to demand aggregation for manufacturing, so that a new cell, wafer or storage line has an order book across the membership rather than a single country.



Second, standards:

harmonizing certification across Member Countries, beginning with ISA's forthcoming position paper on de-risking battery storage (fire safety, standards and cell indigenization), so that equipment certified in one market is bankable in the next.



Third, capability:

the STAR-C centres of excellence, the Global Capability Centre on digital and AI in India and the ISA Academy train regulators, utility engineers and procurement officers inside their own countries, so that the institutions this chapter calls for are built where the projects are.

**Fourth, the digital layer:**

the Global Mission on AI for Energy is developing shared models and data standards for forecasting, dispatch, performance verification and asset tracking, so that no Member Country has to build its own stack from zero.

**Fifth, interconnection:**

the One Sun One World One Grid secretariat at ISA has identified the corridors; what is needed now is feasibility studies and investment structuring. Alongside these, SUNRISE brings 132 members around responsible lifecycle management of solar assets, closing the loop from deployment to end of life.

Three editions, three constraints: capital, systems, projects

The energy transition has entered a new phase, one in which financing and enabling conditions, not technology, increasingly determine the pace and distribution of solar deployment. Annual capacity additions have grown from 75 GW in 2016 to 655 GW in 2025, placing solar alongside wind and nuclear among the largest sources of zero-carbon electricity. Yet global renewable energy investment declined in 2025 for the first time since 2013, and remains concentrated in markets with established institutions, financial systems and project pipelines. Countries with strong solar resources, surging electricity demand and significant access gaps continue to face materially higher borrowing costs. The next decade of solar growth will therefore be won not on technology, but on the cost, tenor and currency of finance and on the strength of the systems that convert capital into operating assets. The argument on generation is over; the argument still open is delivery. In most Member Countries the mandate already exists. What is missing is the plumbing between the mandate and the project: the grid code, the storage standard, the tariff category, the guarantee, the pipeline. One size does not fit all, but one penalty currently does, and it is the penalty on the cost of capital that this report argues should be ended first.

EoDS 2026 responds to this challenge by assessing 127 ISA Member Countries across seven drivers and 90 indicators, integrating local currency financing throughout, introducing a regional classification, and presenting country-level findings through a digital dashboard for the first time. These advances set the platform for a progressive thematic roadmap.

2026 The 2026 edition lays the foundation, examining the macroeconomic and financing environment – local currency financing, capital availability and risk mitigation – to establish whether countries can mobilize investment on terms that reflect domestic revenues and market realities.	2027 2027 turns to digital readiness in the power and utilities sector, assessing whether utilities, grid operators and market institutions possess the digital infrastructure, data systems and forecasting capability to integrate rising volumes of solar, extending the analysis from the availability of finance to the ability of power systems to deploy it effectively.	2028 2028 completes the arc with project-level bankability, evaluating the policy, regulatory and commercial conditions that determine whether improved financing and system readiness translate into projects that attract capital, reach financial close and deliver sustained results.
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Together, the three themes form a deliberate progression: mobilize the right capital, strengthen the systems that absorb it, and prove it out at the project level. The thematic analysis of Country Partnership Framework and Country Partnership Strategy countries will evolve in step, delivering targeted insights on financing readiness, digital integration and bankability.

Through this roadmap, EoDS is evolving from a comparative assessment into a forward-looking decision-support instrument. Each edition will pair the broad measure of solar readiness with a deep examination of one binding constraint – giving policymakers, investors, utilities, financial institutions and development partners an increasingly precise understanding of how financing conditions, system capabilities and project fundamentals interact to determine whether solar opportunities are financed, implemented and sustained at scale.



CONTACT US

International Solar Alliance
Surya Bhawan, National Institute of Solar Energy Campus
Gwal Pahari, Faridabad-Gurugram Road, Gurugram
Haryana – 122003, India
Email: info@isa.int | **Website:** www.isa.int