



## POLICY BRIEF

# Action needed to level the playing field for domestic solar PV companies

January 2021

Mathilde Brix Pedersen · Padmasai Lakshmi Bhamidipati · Hope Nyambura Njoroge · Louise Strange

## This policy brief presents insights gained from the TEMARIN project on ways to improve support for the domestic solar PV sector in Kenya.<sup>1</sup>

Kenya has long been a frontrunner in the diffusion and uptake of solar PV technologies. This has created a mature and vibrant market, with large investments coming into the sector, worth USD 467 million in 2018.<sup>2</sup> This growth in the solar PV market presents opportunities for the Kenyan economy going beyond clean energy and access to electricity in rural areas to include benefits like industrial development, private-sector development and job creation.

### WHY IS ACTION NEEDED?

Over the past two decades, bilateral and multilateral international donors and development finance institutions, followed by impact investing agencies, have contributed immensely in driving down technology costs, increasing investor trust in the solar PV market, and building up competencies and knowledge across all actors nationally, thereby paving the road for a dynamic domestic solar PV industry. The market is largely driven by international companies who have a competitive advantage in terms of their better access to financial resources, expertise and technology.

This is especially the case for the off-grid and utility scale markets. According to a recent G4A report,<sup>3</sup> as of 2020, international companies have captured more than 95% of the total investments of USD 1.6 billion in the off-grid solar PV sector in Sub-Saharan Africa. In the past few years, new market segments making productive and industrial use of solar have gained momentum. This includes, for example, solar for agricultural use (irrigation, agro-processing, cold storage etc.) and captive solar installations for commercial and industrial users (C&I). The market for C&I saw rapid growth from a few installations in 2010 to nearly 40 MW of installations by 2019<sup>4</sup> and is a market predicted to have large growth potential. Our work shows that Kenyan solar PV companies often operate across various market segments, with many growing their portfolios, particularly in the C&I market, and in the productive use segment.

<sup>1</sup> TEMARIN is a three-year Danida-funded project implemented by the UNEP DTU Partnership in collaboration with Kenyan and Ugandan partners. Read more about the project on our [project website](#).

<sup>2</sup> [Global Trends in Renewable Energy Investment 2019 | UNEP - UN Environment Programme](#)

<sup>3</sup> [http://greenmaxcap.com/download/Briefing\\_Report\\_oq2020.pdf](http://greenmaxcap.com/download/Briefing_Report_oq2020.pdf)

<sup>4</sup> [Clean captive power: understanding the uptake and growth of commercial and industrial \(C&I\) solar PV in Kenya. UNEP DTU Partnership](#)

However, it is evident that domestic solar entrepreneurs and domestic companies face both financial and non-financial challenges that are restricting their ability to grow, upscale and take full advantage of the prevailing market opportunities. This is true regardless of whether they operate in the off-grid market (product distributors, mini-grid developers), the captive market (providing services, including EPC, for larger roof-top systems) or the utility market (developing projects or subcontracting on projects).

Domestic solar companies, like any other micro-, small and medium-scale enterprises (MSME), rely on a well-functioning business ecosystem to support their growth and competitiveness. This includes, for example, financial instruments designed to meet the specific needs of domestic companies (e.g. small-ticket investments), targeted competency-development initiatives and targeted incentives for local entrepreneurs through concessional loans, as well as market and sector insights that are of specific relevance to domestic companies and their potential investors.

It is therefore timely to accelerate support targeted at domestic solar PV companies to enable them to expand their businesses, grow their portfolios and improve their competitiveness.

With effective support measures, Kenya's domestic solar PV industry can capture larger shares of the market for solar solutions and thereby serve as a catalyst for local economic development. While the specific needs of domestic companies within each solar PV segment differ and thus require targeted policy attention, this policy brief seeks to highlight relevant cross-cutting aspects in order to increase support for domestic companies.

#### Box 1. What is a solar PV company/enterprise?

Solar PV companies or solar-focused micro-, small and medium-sized enterprises are companies whose core business is to provide solar PV solutions in any segment of the solar industry, i.e. solar home-systems, mini-grids, industrial roof-top systems, water pumps and utility-scale project development. Kenyan solar PV companies often operate across various market segments, with many growing their portfolios in providing captive PV systems for commercial and industrial consumers and in productive use segments, including solar pumps for irrigation, cold-storage solutions and agro-processing. Several companies have operated steadily for over ten years despite the market uncertainties and financial challenges. The strengths of the domestic companies lie in their understanding of their clients' situations and needs, their provision of locally tailored products and services, their use of diverse and creative distribution channels and their trust-based operations.

This policy brief presents recommendations on three main topics: policy support, domestic finance and data, and the knowledge and skills base. These have been derived through a co-creation process in which in-depth studies of the domestic solar PV sector provided the basis for dialogue, alongside ideation sessions with government stakeholders, company representatives, policy-makers, bankers, researchers and donor representatives.

The recommendations cover several topics, some of which will be relevant for policy-makers and govern-

ment agencies, others for company owners, investors and bankers, and yet others for universities, training institutions and research institutes. However, in all cases a systems approach is relevant, as actions needed to support domestic companies will depend on collaboration and partnerships across sector actors, from government agencies and industry players to private investors, donors and training institutes. Timeline, priority, cost/effort and relevant stakeholders for each recommendation are laid out in table 1 at the end of the document.

# Recommendations

## 1. Improve policy support

Although solar PV technologies are cost-effective, innovative business models are implemented, and returns on investments in solar PV projects have been well demonstrated, these conditions are merely necessary but not sufficient for domestic companies to thrive and grow. Targeted initiatives that aim to remove bottlenecks specific to domestic companies are needed in order for these companies to take full advantage of market opportunities.

### **Align MSME policy support and integrate energy and industrial development policy goals**

Solar PV companies are currently not recognized or understood as MSMEs (like manufacturing MSMEs, agri-food companies and service SMEs<sup>5</sup>) and are therefore not specifically targeted through industrial policy interventions. Solar PV market development is mainly recognized and supported in the realm of energy policy, which is also where lobbying efforts by the industry have been most successful.

However, domestic MSMEs in the solar sector could benefit from stronger linkages and targeted interventions between energy policies and industrial development policies. In this regard, a first step would be

for industry and government representatives to work together to identify how to acknowledge and promote energy MSMEs within the MSME policies better, as well as how to strengthen the supporting business ecosystem, for example, by improving engagement with investment promotion organizations and chambers of commerce. A second step would be to share and apply lessons learnt from previous MSME support programmes to the solar PV sector in order to introduce previous effective measures to domestic energy companies.

### **Design finance (portfolio) guarantee schemes to target the specific needs of domestic companies**

The biggest challenge faced by domestic companies is the lack of access to affordable finance that meets the needs of small ticket sizes and requirement for working capital. Many Kenyan companies operate with project finance needs and short-term cash-flow requirements below USD 100,000 and even as low as USD 20,000. Although not a problem limited to domestic companies, the latter in particular are restricted by high interest rates and high demands for collateral in the commercial financing market. Donor- or government-supported finance guarantee schemes in collaboration with commercial banks are highlighted as an important instrument to improve lending conditions for domestic companies and reduce the risks for lenders. While many such schemes already exist, they tend to be under-used. Banks who associate high risk with these companies are

---

<sup>5</sup> While solar PV companies typically fall within the category of service SMEs, current understanding of this category mainly includes businesses in tourism, wholesale and retail, infrastructure, financial services and ICT, as identified in a 2019 report on Kenya SME Competitiveness [https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Kenya\\_SME\\_Comp\\_final\\_low\\_res.pdf](https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Kenya_SME_Comp_final_low_res.pdf) and other such reports on Kenyan SMEs.

obligated to comply with rigid lending requirements, and domestic companies who often struggle with limitations regarding proper book-keeping, insufficient content in loan applications are challenged by the requirement to provide collateral. Continued efforts are therefore needed to tailor these schemes to bridge the needs and requirements of loan takers and lenders better.

### **Ensure consistency in solar PV regulations; simplify and speed up regulatory procedures**

While the regulatory authority is continuously working to improve the regulatory framework for the solar PV sector, solar companies still experience project delays and high cost burdens due to the lack of clarity in regulations, inconsistent application and cumbersome procedures. This includes inconsistencies in terms of how VAT applies to solar and allied components, in terms of tariffs, permits and distribution licenses for mini-grids, in terms of leasing or standardized procedures for captive PV projects, and lastly in terms of FiT and PPA negotiations for utility-scale projects. In addition to simplifying procedures and clarifying grey areas in regulations, various involved authorities should work to increase coordination and break down silo operations (e.g. among EPRA, KRA, Ministry of Energy and industry associations) in order to improve consistency in and governance of interpreting the same regulations across various authorities.

## **2. Expand domestic finance**

Donor projects and programs have supported the growth of domestic PV companies historically. Given the shift to commercial transactions and debt funding, domestic companies are restrained in accessing debt financing and large-scale donor funding. As domestic companies rely on commercial operations, they turn to local commercial banks for cash flow needs, often in the form of loans on market terms, that is, with high interest rates and unrealistic demands for collateral.

Donor programs and development banks (AFD SUNREF, AfDB, IFC) have been extending support to commercial banks with technical assistance and concessionary financing to drive renewable-energy investments. While the challenge of closing the financing gap for renewable forms of energy is vast, here we only explore potential ways to close the gap between commercial banking at a national level and domestic solar companies.

## **Banking sector**

### **Sharpen the sector-wide strategic focus on renewable energy**

In a recent shift, the banking sector is increasingly recognizing the renewable-energy and energy-efficiency market as a future growth market for investments, beyond the traditional banking channels. Many are now in the process of formulating strategies and internally discussing what it will take to move into the market and lend to solar companies. A sector-wide strategic focus by the banking industry on how local commercial banks can increase lending volumes and reduce access barriers by modifying lending terms and requirements will greatly benefit domestic companies. A realistic estimate of the risk metrics for lending to clean energy companies would also help commercial banks expand their lending volumes.

### **Innovate with regard to alternatives to the rigid requirements for security**

Solar companies are highly restrained by the requirement for security, which is often in the range of a 40%-80% equity requirement for standalone projects. Based on experience in the sector, banks should explore new and innovative approaches to determine how these security requirements can be reduced. There are examples of solar companies who have been working with lenders who were able to go beyond collateral by prioritizing alternative evaluation criteria such as i) receivables and contracts, ii) offering construction equipment or solar equipment as security, iii) a greater emphasis on the strength of the team, as well as the company's history and portfolio, and iv) leasing for solar PV equipment (e.g. Coop Bank). Putting forward such examples in a structured manner can serve as an inspiration for the banking sector at large.

Furthermore, the domestic private solar sector highlights a need to simplify the understanding of solar projects by the banks, as well as to distinguish between the different solar PV segments with regard to lending models. For more simply structured projects where solar PV products can be viewed as a commodity (e.g. SHS distribution, solar pumps, solar heaters etc. and to some extent captive power projects), banks could innovate in requiring and providing commodity model retail loans (like a loan for a car), which would also reduce the transactional costs for the banks in providing these types of services.

### **Expand training for commercial banks on solar PV and establish in-house technical and business expertise on solar PV in banks at both the corporate and retail levels**

Bankers often lack adequate expertise in the technical aspects and business modalities of solar PV projects, which limits their ability to find alternative solutions to reduce the security requirements and support companies with lending and financial transactions.

Technical assistance and training support for banks are currently routed through development partners (such as IFC, World Bank, AFD) and are targeted mainly at the corporate banking level. Further efforts could also target the retail banking officers in the asset finance departments of commercial banks. One such effort could be formal collaboration between solar PV training institutions and commercial banks, as well as improved exchanges of knowledge between the banks' corporate and retail staff.

## **Solar PV private sector**

### **Expand training for domestic companies in proposal writing and financial modelling**

Solar companies face challenges with a range of broader business skills. This includes problems in writing proposals, making complex financial calculations, understanding financial jargon (terms, concepts) in order to communicate with financiers, and presenting adequate, appropriate and high-quality information to investors.

In this regard, the solar PV industry association could facilitate thematic seminars and workshops by engaging with expert stakeholders on these topics and/or facilitating peer-to-peer knowledge exchange through a forum by teaming up older, more established companies with smaller, upcoming MSMEs. Furthermore, currently, although solar curricula developed by TVETS and universities have a strong technical focus, they are less interested in the important business and financial aspects. TVETS and universities could therefore include these aspects in their curricula and course design.

### **Improve the quality of information made available by domestic companies to financiers**

There is a gap between what is expected from the financiers and what is provided by the private-sector

companies, not only in the extent of information and documentation provided, but also in terms of their adequacy. Domestic companies struggle to present their businesses in a structured and transparent way, which makes it difficult for the banks to assess their credit-worthiness, thereby discouraging lending. Low-quality information translates into higher perceptions of risk and thus higher requirements for collateral.

Domestic companies and local entrepreneurs could enhance the information they make available to banks and investors by improving their accounting records and paperwork that documents their track record and by practicing systematic book-keeping. Companies need to fully gauge the requirements of the loan applications and seek additional feedback on how they can strengthen or tailor their applications better. More information from the companies will also help the commercial banks, as well as open up opportunities to international investors, improving their confidence in the investments and thereby reducing perceptions of risk.

### **Improve collaboration between industry players and commercial banks**

Local banks and companies alike can benefit from redefining their relationship by pursuing a partnership approach whereby technical capacity is built on the part of the banks and financial capacity on the part of the MSMEs. The traditional role of the banks in merely assessing incoming lending applications and approving or rejecting them could evolve into them pursuing a more active role in supporting companies in becoming eligible for a loan. This would include identifying systematic gaps in companies' documentation, exchanging structured dialogues on bridging the gaps in needs and expectations, and working with the industry or the sector at large to overcome the barriers. This would be an opportunity for banks to build their future renewable energy customer base in a strategic way. In addition, the industry could collaborate strategically through associations and training institutions to provide technical capacity-building to the banking sector.

### 3. Strengthen data, knowledge and skills base

High-quality information and data are crucial to inform policy-makers, lower investors' perceptions of the risks posed by domestic companies, and demonstrate the viability of investments in the sector at large.

#### Generate relevant data and publish market reports

Market intelligence products, such as yearly market reports with detailed breakdowns of market segments, as well as analyses of specific business models and their characteristics, will support companies and investors alike in decision-making. Organizations like GOGLA and AMDA have contributed to improving market data and market intelligence for the market segments of SHS and mini-grids. However, there is also the scope to include analyses and data generation specifically on domestic companies within these market segments.

For newer market segments, including productive use and C&I, there is an opportunity for private-sector associations to establish dedicated chapters to work with members to share and publish data. Furthermore, relevant data and knowledge generation support company-specific insight-generation and research, including, inter alia, company portfolios, histories, linkages and strengths. This could take the form of a domestic solar PV company database showcasing domestic companies. Such research and market knowledge can help establish a better understanding of the domestic sector when information is limited for international as well as local investors.

#### Establish a centralized database of successful project proposals and financial details of successfully completed projects

Specific examples of what has worked in the past, especially with small to medium ticket sizes, could serve as a basis for bridging the gap in understanding between domestic companies and potential investors. This could take the form of: i) a platform or database of examples of successful tenders and proposals to help companies improve their understanding of what banks and investors require; ii) an overview or study of successful projects that have managed to pay back loans, including financial details in stylised form. This could act as a resource for banks helping them understand various models and specific project details; and iii) donor-supported projects with the aim of testing, proving and publishing information on successful models.

#### Strengthen links between solar PV training institutions and the industry

As the market for solar PV has matured, so has the technical skills base in the sector. Over the years, the Kenyan government, in collaboration with the regulatory authorities (e.g. EPRA), development partners (e.g. GIZ), educational bodies, universities and research institutes (e.g. SERC) and TVETs, has made a concerted effort to improve the skills levels of technicians, solar installers and engineers. This means that basic technical competences and skills are well covered through existing training courses and certification requirements. However, domestic companies often face difficulties in acquiring and retaining highly specialized staff with specialized skills, e.g. in designing or sizing systems, managing technically complex projects or handling O&M tasks.

There is a gap between what is taught in traditional university degrees and TVET courses and the practical up-to-date experience needed in what is a changing and dynamic market. Companies often spend many resources on in-house training efforts, which is a high cost burden, especially when it involves rotational temporary staff.

One option is for the private-sector association and the government or the private sector and academia and training institutions to collaborate in establishing a formal multivendor forum to provide specialized top-up courses in collaboration with solar PV vendors and training institutions. Such multivendor forums could be complemented with other formal channels for knowledge-sharing, like a regular solar PV conference or a national skills competition, to ensure continuous learning and greater exposure to new technological developments.

# Concluding Remarks

The renewable-energy market represents great development potential for emerging economies in terms of enterprise development, job creation and industrial development. The Kenyan solar PV market is one of the most highly evolved markets in Sub-Saharan Africa. However, investments in the market are largely captured by international companies that have a competitive advantage in terms of their better access to financial resources, expertise and technology. Actions specifically targeted at supporting domestic solar companies and in creating an enabling environment for the domestic solar industry are therefore needed in order to maximise the benefits of renewable energy deployment for the local economy.

This policy brief has put forward a range of recommendations that call for closer collaboration between industry players and supporting institutions, such as commercial banks, training and academic institutions, ministries and other government institutions, to pursue coordinated and strategic efforts to strengthen the domestic solar PV industry. Such collaboration also calls for better organization within the industry itself and a shared vision among domestic solar PV companies in order to strengthen advocacy and take the lead in forming the necessary partnerships (e.g. with banks and training institutions) and making the necessary interventions on behalf of the sector as a whole.

## Roadmap to strengthen support for domestic solar PV companies in Kenya

ACTIONS	TIMELINE	PRIORITY	COST/ EFFORT	STAKEHOLDERS
Improve policy support for domestic solar companies				
Align MSME policy support and increase collaboration between MoI and MoE to achieve synergies between development goals in regards to industrial and MSME development and energy sector development.	2021-2022	medium-high	low	Government and solar PV companies through private sector association
Explore why existing finance (portfolio) guarantee schemes are under-used and design schemes to target specific needs of domestic companies	2021-2022	high	high	Government, development agencies, DFIs and solar PV companies through private sector association
Ensure consistency in solar PV regulations, simplify and speed up regulatory procedures	On-going	medium-high	medium-high	Regulator and solar PV companies through private sector association
Expand domestic finance for solar companies				
Banking sector				
Sharpen the sector-wide strategic focus on renewable energy to increase lending volumes and reduce access barriers	2021-2022	high	medium	Commercial banks through bank association
Innovate with regard to alternatives to the rigid requirements for security	2021-2022	high	medium-high	Commercial banks through bank association in collaboration with solar PV companies through private sector association and with support from relevant ministries and central bank
Expand training for commercial banks on solar PV and establish in-house technical and business expertise on solar PV in banks at both the corporate and retail levels	2021-2025	high	high	Solar PV companies through private sector association, training institutions in collaboration with commercial banks through bank association. Support from DFIs and development agencies
Solar PV Private sector				
Expand training for domestic companies on proposal writing and financial modelling	2021-2022	high	low	Solar PV companies through private sector association. Support from DFIs, consultancy firms, research and training institutes
Improve the quality of information made available by domestic companies to investors	2021 onwards	high	low	Solar PV companies with support from private sector association, DFIs and training institutes
Improve collaboration between industry players and commercial banks to enhance the capacity of both	2021 onwards	medium-high	medium	Solar PV companies and commercial banks through associations
Strengthen data, knowledge and skills base				
Generate relevant data, publish market reports and conduct research on domestic solar PV companies	2021 onwards	medium	medium-high	Research institutes in collaboration with solar PV private sector
Establish a centralized database of successful project proposals and financial details of successfully completed projects	2021-2022	medium	medium-high	Solar PV companies through private sector association in collaboration with DFIs and research institutes
Strengthen links between solar PV training institutions and the industry and establish formal collaboration for skills development and knowledge-sharing	2021 onwards	high	medium	Solar PV companies through private sector association in collaboration with regulator, Engineers Board of Kenya, training and research institutes, bank association, development agencies

**Authors**

Mathilde Brix Pedersen (UNEP DTU Partnership)  
Padmasai Lakshmi Bhamidipati (UNEP DTU Partnership)  
Hope Nyambura Njoroge (Strathmore Energy Research Centre)  
Louise Strange (UNEP DTU Partnership)

**Disclaimer**

The use of information from this document for publicity or advertising is not permitted. The sole responsibility for the content of this policy brief lies with the authors. It does not necessarily reflect the opinion of the United Nations Environment Programme. We regret any errors or omissions that may have been unwittingly made.

ISBN: 978-87-93458-95-6

2021

**UNEP DTU Partnership**  
Copenhagen, Denmark  
[www.unepdtu.org](http://www.unepdtu.org)

**Strathmore Energy research Centre**  
Nairobi, Kenya  
[www.serc.strathmore.edu](http://www.serc.strathmore.edu)



**@UNEPDTU**



**UNEPDTU.ORG**