

A Guide to Ghana's Renewable Energy Fund for Solar Manufacturing Startups

A Factual Guide for Solar Manufacturing Startups in West Africa

Content Partner: J. v. G. technology GmbH

Turnkey solar module production lines — since 1997

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Technical Overview: Ghana's Renewable Energy Fund for Solar Startups



Created as part of the PVKnowHow Knowledge Network



Prepared by J.v.G. Technology GmbH



European specialists in turnkey solar module production lines

Key Project Data

50–20...

Scale

Typical startup
manufacturing range for
viable market entry

\$5–15M

Investment Range

Depending on automation
level and facility scope

6–12 mo


Ramp-Up Period

Funding-dependent; from
line commissioning to full
production

2 Types

Line Options

Semi-automated or fully
automated production
configurations

 Region: Ghana / West Africa · Source: PVKnowHow / J.v.G. Technology GmbH · These figures reflect composite scenarios based on real-world projects

Solar Manufacturing Opportunity in West Africa

The Structural Gap

- Ghana imports the majority of its solar modules — significant cost drain
- Between 2013 and 2022, Ghana imported over \$74 million in solar modules
- Additional \$300M in imports projected by 2030 without domestic production
- No significant local manufacturing base currently exists in West Africa

The Strategic Case

- Strong solar irradiation: avg. above 5 kWh/m²/day across Ghana
- Energy demand growing ~4.7% year-on-year through 2025
- Government policy supports local industrial content and domestic capacity
- Regional export potential: Ghana supplies power to Togo, Benin, Burkina Faso

Market Drivers: Energy Demand & Policy Support

Energy Demand Growth

- Projected electricity consumption: 25,836 GWh by 2025 (+4.7% YoY)
- Thermal generation = 66% of mix; renewables remain underutilized
- Solar and wind contribute only ~132 MW of installed capacity
- National Renewable Energy Master Plan targets a significantly higher share

Policy & Regulatory Support

- Renewable Energy Act, 2011 (Act 832) – legal framework for RE investment
- 2023: moratorium on wholesale RE licenses lifted; private applications now open
- Local Content Regulations (L.I. 2354): 51%+ local ownership incentivized
- 60% local content mandate boosts domestic manufacturing value proposition

Industrial Ambition

- Ghana Energy Transition & Investment Plan (ETIP) launched 2023
- Net zero pathway to 2060; solar PV targeted to reach 150 GW
- Government committed to domestic production of solar cells and components
- REF explicitly designed to fund manufacturing ventures, not just generation


What Is the Renewable Energy Fund (REF)?

Definition & Legal Basis

- Established under Ghana's Renewable Energy Act, 2011 (Act 832)
- A government financial instrument to promote domestic RE development
- Supports manufacturing, distribution, and use of renewable energy
- Aligned with Ghana's national RE Master Plan targets

How the Fund Is Financed

- Levy on electricity consumption billed to consumers
- Parliamentary budget appropriations
- Grants, donations, and voluntary contributions
- Fund actively seeks viable projects aligned with national strategy

 The REF is structured to support enterprises that build domestic industrial capacity — a solar manufacturing startup is precisely the type of venture the fund was created to finance.

Eligibility Requirements for Investors

Energy Commission Licensing

- Project must be licensed by the Energy Commission – the primary regulatory authority
- Licensing process must be underway before or during REF application
- Proper legal and technical planning required from the outset

Business Plan Requirements

- Comprehensive business plan is a prerequisite – not optional
- Must demonstrate both technical feasibility and financial sustainability
- Review committee weighs project viability heavily in assessment

Local Impact Criteria

- Project must demonstrate measurable local employment creation
- Local content and domestic capacity-building are assessed favorably
- Technology transfer and skills development strengthen applications

Application Process: Step-by-Step

- 1 — Concept Preparation**
 - Define project scope, production scale (50–200 MW), and site plan
 - Identify technology partner with proven turnkey delivery capability
- 2 — Business Plan Development**
 - Prepare a comprehensive plan: market analysis, financial model, job creation projections
 - A fundable plan must address both technical feasibility and long-term sustainability
- 3 — Energy Commission Licensing**
 - Initiate formal licensing application with Ghana's Energy Commission
 - Licensing must be underway before REF review committee evaluation
- 4 — REF Application Submission**
 - Submit application with full documentation to the fund administrator
 - Application reviewed against eligibility, viability, and strategic fit criteria
- 5 — Evaluation & Disbursement**
 - Committee assessment; conditional approval may require further documentation
 - Funds disbursed in tranches aligned with project milestones

Financial Support Types: Grants vs. Concessional Loans

Criterion	Grants	Concessional Loans
Repayment	Non-repayable	Repayable at below-market rates
Typical Use	Machinery/equipment subsidies; R&D; feasibility studies	Commercially viable projects needing affordable debt
Target Beneficiary	Early-stage; market stimulation projects	Projects that cannot secure commercial bank financing
Strategic Purpose	Reduce high upfront capex; de-risk market entry	Bridge gap between viability and commercial credit access
Complementary Instruments	Can be combined with technical assistance	Can be combined with grant components (blended finance)

Key Challenges Applicants Must Address

Business Plan Quality

- Review committee scrutinizes technical and financial credibility closely
- Weak projections or unsubstantiated market assumptions are disqualifying
- Independent technical validation significantly strengthens the application

Licensing & Regulatory Compliance

- Energy Commission licensing is a hard prerequisite — not a parallel track
- Environmental and local content assessments add lead time to planning
- Regulatory gaps must be identified and resolved before submission

Demonstrating Local Impact

- Fund prioritizes projects with quantifiable job creation and skills transfer
- Applicants must show clear linkage to domestic supply chains
- Community and industrial development narratives carry significant weight

Strategic Success Factors

1

Proven Technology Partner

Engage an experienced European turnkey provider with documented factory delivery history – reduces technical risk and strengthens credibility with reviewers

2

Realistic Financial Modelling

Build the business case on verifiable cost data (\$5–15M range); model ramp-up realistically at 6–12 months; avoid overstating first-year revenues

3

Early Regulatory Engagement

Initiate Energy Commission licensing in parallel with business plan development – late licensing is the most common cause of application delay or rejection

- ❑ A proven turnkey manufacturing concept – with on-site training included – significantly reduces the learning curve for new manufacturers and strengthens the credibility of the application package.

Semi-Automated vs. Fully Automated Lines: Investment Implications

Criterion	Semi-Automated Line	Fully Automated Line
Typical Scale	50–100 MW/yr	100–200 MW/yr and above
Initial Investment	Lower capex; suitable for grant-funded entry	Higher upfront; lower cost/module at volume
Ramp-Up Period	6–12 months; operator training critical	12+ months; integration and calibration intensive
REF Fit	Well-aligned with grant and loan blended support	Better suited for loan-heavy or equity-supplemented structures
Local Employment	Higher operator headcount; stronger local jobs narrative	Fewer operators; stronger efficiency and export narrative

Conclusion: A Government-Backed Industrial Opportunity

Structural Fit

- Ghana's REF was explicitly designed for ventures like solar manufacturing
- Policy environment (ETIP, Local Content Law, Act 832) is increasingly aligned
- Window of opportunity is real — domestic production base does not yet exist

Conditions for Success

- Strong business plan + early Energy Commission licensing = fundable application
- Right-sized factory concept: \$5–15M, 50–200 MW, 6–12 month ramp
- Experienced turnkey partner de-risks technical execution and credibility

Strategic Takeaway

- This is an industrial opportunity backed by sovereign capital — not purely commercial
- First movers with credible plans and licensed structures are best positioned
- The REF framework rewards preparation, not speed

✓ Scale: 50–200 MW · Investment: \$5–15M · Line type: Semi/Fully automated · Ramp-up: 6–12 months · Region: Ghana / West Africa · Source: PVKnowHow / J.v.G. Technology GmbH

About the Content Partner

J. v. G. technology GmbH – The DESERT Company

Founded in 1997 in Bavaria, Germany. Family-owned engineering company specializing in turnkey solar module production lines.

More than 90 factory projects delivered worldwide.

On-site team training included – no prior manufacturing experience required.

Key areas:

Turnkey PV manufacturing lines | DESERT Technology® |
TÜV-certified module designs | Factory planning to production

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