

A Practical Guide to Land Acquisition and EPA Permitting for a Solar Factory in Ghana

An analytical framework for establishing solar module manufacturing through turnkey partnerships in Ghana's renewable energy sector.

Educational analysis based on regulatory requirements and operational insights - Source: J.v.G. Technology GmbH.





Strategic framework for mid-scale industrial solar manufacturing in West Africa



Created as part of the PVKnowHow Knowledge Network



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European specialists in turnkey solar module production lines

Ghana's Renewable Energy Regulatory Context

Ghana's renewable energy sector is governed by the Renewable Energy Act, 2011 (Act 832), which provides the legal framework for development, management, and utilization of renewable energy sources. The National Energy Policy, Renewable Energy Master Plan, and National Energy Transition Plan have been implemented to promote renewable energy.



Energy Transition Framework

Ghana aims to increase the share of renewables in the energy generation mix with a target of 10% renewable energy by 2030



Private Sector Growth

Ghana lifted its moratorium on wholesale electricity supply licenses for renewable energy embedded generation projects in April 2023. Industry players can now apply for licenses to develop renewable energy generation projects.



Demand Growth

Ghana's energy needs continue to grow. In 2025, projected electricity consumption is estimated to reach 25,836 GWh, representing a 4.7% increase in demand year-on-year.

Local Content Requirements



Legal Framework

The 2017 Local Content Regulations (L.I. 2354) require at least 51% local ownership in wholesale electricity supply and distribution within Ghana, with a 60% local content mandate.



Manufacturing Requirements

For entities established to manufacture renewable energy equipment, a minimum of 40% equity ownership by an indigenous Ghanaian company (IGC) is required.



Local Participation

Ghana's Renewable Energy Master Plan aims to promote local content and local participation in the renewable energy industry by 2030.

Land Acquisition Framework

Site Requirements

- Industrial zoning compliance required
- Proximity to electrical grid infrastructure
- Access to transportation networks

Regulatory Approvals

- Local assembly approval for site development
- Ministry of Lands and Natural Resources coordination
- Traditional authority engagement where applicable
- Title registration and documentation requirements

EPA Environmental Permitting Process

Initial Assessment

- EPA makes screening decision within 25 days regarding level of environmental assessment required
- Environmental permit mandatory for industrial undertakings prior to commencement
- Projects subject to EIA based on positive lists in Schedule I requiring registration and environmental permit

Assessment Requirements

- Environmental Impact Assessment (EIA) conducted by qualified environmental consultants with detailed report preparation
- Draft EIA report reviewed in maximum of 50 days
- Public consultations required for projects with significant community impacts

Permitting Timeline

- Environmental Permit issued within maximum of 15 days after EIA finalization. Whole application process should not exceed 90 days
- Environmental Certificate required within 24 months of commencement date
- Environmental Management Plan (EMP) required outlining risk mitigation strategies

Investment Risks and Challenges

Regulatory Complexity

Companies must consider licensing requirements, technical standards, environmental regulations, financing options, and power purchase agreement complexities

Local Market Knowledge

Understanding of business practices, government relationship management, and skilled workforce development requirements

Infrastructure Constraints

Energy sector debt from pricing below full cost recovery, long payment delays to producers, and high power costs create economic development challenges

Compliance Requirements

Annual environmental audit reports required detailing waste management, air quality, noise levels, and adherence to environmental standards with EPA compliance records



Partnership Structure Framework

1

Foreign Investment Component

- Technology transfer and equipment provision
- Technical expertise and training programs
- Working capital for initial operations

2

Local Partner Contributions

- Regulatory navigation and government relations
- Site acquisition and development management
- Local workforce recruitment and training

Investment Distribution Framework

Technology Provider Contributions

- Manufacturing equipment: 40-50% of total investment
- Technology licensing and knowledge transfer
- Technical training and certification programs
- Quality assurance and compliance systems

Local Partner Responsibilities

- Land acquisition and site preparation: 10-20% of investment
- Building construction and facility development
- Regulatory approvals and licensing coordination
- Local compliance and government relations

Turnkey Manufacturing Implementation

Technology Platform

Proven turnkey manufacturing concept with standardized production processes and international quality systems

Equipment Package

Complete production line solution including testing equipment, certification support, and commissioning assistance

Training Program

Comprehensive technical training for local workforce covering production processes and quality control procedures

Compliance Standards

International quality certification ensuring product compliance with regional and global market requirements

Key Project Data

20–50

Factory Size

MW production capacity

6–12

Permitting Timeline

Months for regulatory approval

25–30

Workforce

Employees required

Land Requirement

2,000–5,000 m² industrial site

Lease Terms

Up to 50 years (renewable)

Region

Ghana

Source: PVKnowHow / J.v.G. Technology GmbH

National Development Alignment

Industrial Development

Supports Ghana's manufacturing sector growth objectives and local value chain development

Energy Security

Contributes to renewable energy transition, improves energy security, and promotes sustainable development

Employment Generation

Creates employment opportunities within the renewable energy sector supporting local economic development

Market Supply

Establishes reliable local solar module supply capacity for domestic and regional markets

Implementation Considerations

Market Opportunity

Government interest in additional solar power generation capacity, especially in Ghana's northern regions, creates substantial demand for locally-manufactured solutions

Partnership Advantage

Joint venture structure balances foreign technical expertise with essential local regulatory knowledge and market access

Regulatory Framework

An experienced European turnkey provider offers reliable implementation pathway within established permitting timelines

Source & Methodology

J.v.G. Technology GmbH

Turnkey Solar Module Production Lines

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