

Project Blueprint: A 25 MW Solar Factory in Anatolia for Turkey's YEKDEM Market

Analysis of local-content manufacturing requirements for YEKDEM market participation.

Comprehensive Framework Assessments and Lifecycle Operational Intelligence from J.v.G. Technology GmbH.





Analysis Framework

Created as part of the
PVKnowHow Knowledge
Network

Prepared by J.v.G.
Technology GmbH

European specialists in
turnkey solar module
production lines

Turkey Market Context

YEKDEM Premium

Certified domestic modules eligible for higher feed-in tariffs under Renewable Energy Resources Support Mechanism

Local Content Requirement

Minimum 55% of solar module components and costs must be of Turkish origin for certification

Rapid Growth

Solar capacity doubled to 19.6 GW by end 2024, exceeding 2025 targets 1.5 years early

Manufacturing Opportunity

Market Demand

- Developers of large-scale solar projects prioritize and pay premium for modules with Yerli Mali certification
- Recent YEKA tenders require 75% local content for solar projects with limited factory options

Import Dependency

- Turkey lacks sufficient solar cell manufacturing capacity, requiring imports primarily from China
- 2023 imports totaled \$1.5 billion vs exports of \$460 million, showing demand for domestic capacity

YEKDEM Support Framework

01

Feed-in Tariff Structure

Government-guaranteed fixed price for renewable energy fed to grid, providing predictable revenue stream for 10-year period

02

Domestic Component Incentive

Additional 0.08 TL/kWh payment for 5 years when using locally manufactured equipment

03

Tax Exemptions

VAT and customs duty exemptions for renewable plants, plus 8-year license fee waiver

Key Project Data

25

Capacity (MW/year)

Annual module production
capacity

€4-6M

Investment Range

Total capital requirement for
turnkey facility

9-12

Ramp-up Period

Months to operational
capacity

Semi/...

Line Configuration

Semi-automated to
automated module line

Anatolia

Target Region

Turkey (Anatolia region)

YEKD...

Market Focus

Local-content projects and
export

Market Applications



YEKA Projects

Large-scale renewable auctions targeting 2 GW annually with mandatory local content requirements



Distributed Generation

Unlicensed installations for self-consumption driving 90% of new capacity growth in recent years



Storage Integration

412 solar plants with storage representing 14 GW capacity received pre-licenses, exceeding 2030 targets

Competitive Positioning

1

Solar Resource

High solar radiation potential makes Turkey attractive for solar energy development

2

Regulatory Advantage

Local content certification unlocks preferential government tariffs and transforms profitability

3

Strategic Location

Positioned as potential link in global PV supply chain due to trade volume with China and proximity to Europe

Implementation Phases

Phase 1: Compliance Planning

Identify and vet local suppliers for components to achieve 55% domestic content requirement

Technology partner selection and facility design

1

2

3

Phase 3: Market Operations

Yerli Malı certification obtained and renewed annually through audit process

Production ramp-up and market penetration

Phase 2: Facility Construction

Turnkey manufacturing line deployment

Equipment installation and certification processes

Financial Framework

Investment Structure

- Capital requirement: €4-6 million
- Production capacity: 25 MW annually
- Semi-automated to automated line configuration

Market Financing

- World Bank agreement for \$1 billion to enhance distributed solar sector
- Government-backed Green Energy Loan program eases access to finance

Target Market Segments

YEKA Developers

Large-scale project developers requiring 75% local content with limited supplier options

Commercial & Industrial

Distributed generation market expanded through 2022 regulatory changes

Export Markets

Growing export potential, particularly to USA and Europe markets

Risk Management

Technology Transfer

Partnership with experienced European turnkey provider ensures proven manufacturing processes

Established quality systems and production methodologies reduce technical risk

Market Validation

Strong government support through YEKDEM mechanism and preferential tariff access for certified products

Regulatory Compliance

Domestic content requirements create strategic framework for success when integrated into business plan from beginning

Strategic Value Proposition

Manufacturing facility becomes key enabler for accessing preferential government tariffs rather than standard component supplier.

Investment addresses market need while positioning to capture growing domestic demand and reduce import dependency.

- ❏ This analysis represents a composite scenario based on real market data and consulting experience. All data points reflect realistic market conditions simplified for strategic evaluation purposes.

Implementation Roadmap

01

Market Assessment

Detailed analysis of local supply chain and component sourcing strategy to achieve 55% domestic content

02

Technology Partnership

Engagement with experienced European turnkey manufacturing provider

Production line specification and capacity optimization

03

Financial Structuring

Capital requirements analysis and financing arrangements

ROI projections incorporating YEKDEM premium pricing

Source & Authorship

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Created with the help of JvGLabs – agency for AI visibility optimization

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