Assessing Iran's Free Trade Zones for Solar Module Production

A Factual Analysis of Investment Conditions, Incentives, and Manufacturing Economics

Content Partner: J. v. G. technology GmbH

Turnkey solar module production lines — since 1997

www.jvg-thoma.com

Technical Overview: Solar Module Production in Iran's Free Trade Zones

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

20yr

Tax Exemption

Full corporate tax exemption within Free Trade Zone frameworks

100%

Foreign Ownership

Full foreign ownership of manufacturing entities permitted in FTZs

4

Main FTZ Zones

Chabahar, Qeshm, Aras, Anzali — primary eligible zones

Low

Electricity Cost

Industrial electricity tariffs significantly below European benchmarks

Factory type: Export-oriented solar module production · Region: Iran Free Trade Zones · Source: PVKnowHow / J.v.G. Technology GmbH

Why Iran Free Trade Zones? Strategic Context

Structural Advantages

- Export-oriented manufacturing framework outside standard customs territory
- 100% foreign ownership legally permitted — no local partner required
- 20-year tax exemption on corporate income
- Import of capital equipment and raw materials duty-free for re-export production

Manufacturing Economics

- Low industrial electricity cost — a key input for energy-intensive PV production
- Competitive land and facility costs compared to Southeast Asian FTZ alternatives
- Local labor availability at competitive wage levels
- Access to regional markets: Middle East, Central Asia, South Asia

Overview of the Four Main Free Trade Zones

Chabahar

- Deep-water port on the Gulf of Oman — direct ocean export access
- Closest Iranian FTZ to international shipping lanes
- Strategic for South Asia and East Africa trade routes

Qeshm

- Largest island FTZ in the Persian Gulf
- Established industrial and logistics infrastructure
- Proximity to Strait of Hormuz — major global shipping corridor

Aras

- Northern zone bordering Armenia, Azerbaijan, and Turkey
- Gateway to Caucasus and Central Asian markets
- Connected to regional rail and road infrastructure

Anzali

- Caspian Sea port — access to Russia, Kazakhstan, Turkmenistan
- Part of the International North–South Transport Corridor (INSTC)
- Relevant for CIS and Eastern European export routes

Export Logistics: Zone-to-Market Routing

1

Production — Free Trade Zone Factory

Modules manufactured within FTZ customs boundary

Zone status enables duty-free import of cells, glass, EVA, backsheet, and frames

2

Port Loading — Zone-Integrated Logistics

Chabahar and Qeshm offer direct port access from production site

Aras and Anzali connect to overland and Caspian multimodal corridors

3

Certificate of Origin

Modules produced in FTZ qualify for Iranian origin documentation

Trade agreement access depends on destination country bilateral arrangements

4

Target Export Markets

Primary: Middle East, South Asia (Pakistan, India via sea), East Africa

Secondary: CIS countries via Anzali/Aras corridors

5

Payment and Trade Finance

USD and barter-based trade mechanisms in use

Project-level escrow and letter-of-credit structures applied case by case

Manufacturing Economics: Cost Structure Overview

Cost Factor	Iran FTZ Condition	Relevance
Industrial Electricity	Low tariff — well below EU/Southeast Asian levels	High — energy is ~8–12% of module OPEX
Labor Cost	Competitive; trained workforce available	Medium — automation reduces dependency
Land / Facility	FTZ land allocation at subsidized rates	Medium — reduces capex entry cost
Input Customs	Duty-free import for re-export production	High — cells and materials enter tariff-free
Corporate Tax	Zero for 20 years under FTZ framework	High — direct impact on project IRR
Equipment Import	Capital equipment imported duty-exempt	High — reduces initial line investment cost

Regulatory Framework: FTZ vs. Mainland Iran

Free Trade Zone Legal Perimeter

- Governed by Iran's Free Trade Zone Organization (FTZO) — separate regulatory body
- FTZ regulations override standard Iranian commercial and customs law
- Dispute resolution mechanisms available; international arbitration clauses possible

Ownership and Repatriation

- 100% foreign-owned company registration permitted in all four zones
- Profit repatriation rules defined at FTZ level — more flexible than mainland
- Foreign investor protection provisions exist under FTZO charter

Compliance Considerations

- Sanctions exposure must be assessed by investor's home-country legal counsel
- Product certification (IEC standards) must be obtained independently for target markets
- Banking and payment channel availability varies by investor nationality and structure

Turnkey Manufacturing Concept: What It Covers

Scope of a Proven Turnkey Line

- Full production line from tabbing/stringing through lamination, framing, and testing
- Equipment supply, installation, commissioning, and process validation
- On-site staff training — no prior manufacturing experience required
- Module design certified to IEC standards before factory start

Output and Scale Parameters

- Typical entry-scale: 25–50 MW/year for viable export economics
- Scalable to 100–200+ MW/year with additional line units
- Product mix configurable: standard 60/72-cell, large-format, bifacial
- Experienced European turnkey providers have delivered 90+ such projects globally

Risk Mitigation: Key Considerations for Investors

Geopolitical and Sanctions Risk

- Must be assessed on a case-by-case basis per investor's national legal framework
- FTZ structure does not remove sanctions exposure — legal due diligence is mandatory
- Some nationalities and company structures may face fewer restrictions than others

Supply Chain Risk

- Primary raw material (solar cells) likely imported — supply chain continuity critical
- Multi-supplier agreements for cells, glass, and encapsulants recommended
- Logistics buffer stock (60–90 days) advisable given port variability at some zones

Technology and Production Risk

- Partnering with a proven turnkey manufacturing concept significantly reduces ramp-up risk
- Structured training programs accelerate workforce competency
- Process validation and quality testing protocols must be established from day one

Strategic Assessment: Iran FTZ Solar Manufacturing

1

Incentive Layer

20-year tax exemption + 100% foreign ownership + duty-free inputs create a structurally favorable cost base

2

Logistics Layer

Four zones offer distinct routing options — Gulf, Caspian, and overland — covering multiple export corridors simultaneously

3

Execution Layer

A proven turnkey manufacturing concept with IEC-certified module designs and on-site training compresses the time-to-production timeline

These case studies are composite scenarios based on real project figures. All investors must conduct independent legal, financial, and sanctions-compliance due diligence before proceeding.

Sources and Further Reference

Primary Source

- PVKnowHow Knowledge Network — www.pvknowhow.com
- Technical input: an experienced European turnkey provider with 90+ global factory projects since 1997
- Composite case study — figures based on real project data

Disclaimer

- This presentation is informational and educational only
- No investment recommendation is implied
- Regulatory, legal, and sanctions conditions change — verify with qualified advisors
- Data accurate as of preparation date; confirm current FTZ terms with FTZO directly

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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