Israel’s Untapped Solar Market: The Case for Agri-PV and Desert-Ready Modules

The Case for Agri-PV and Desert-Ready Module Manufacturing

Content Partner: J. v. G. technology GmbH

Turnkey solar module production lines — since 1997

www.jvg-thoma.com

Technical Overview: Agri-PV and Desert-Ready Modules in Israel

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

20–10…	Flexible	6–12 mo	Multi
Project Scale	**CAPEX Model**	**Ramp-Up Time**	**Line Type**
Target range for a viable local manufacturing operation	Investment comparable to a standard PV production line	From equipment delivery to full production capacity	Flexible / multi-product production line (bifacial, semi-transparent, standard)

Region: Israel · Line Concept: Flexible turnkey manufacturing · Source: PVKnowHow / J.v.G. Technology GmbH

The Israel Solar Challenge: Land Scarcity

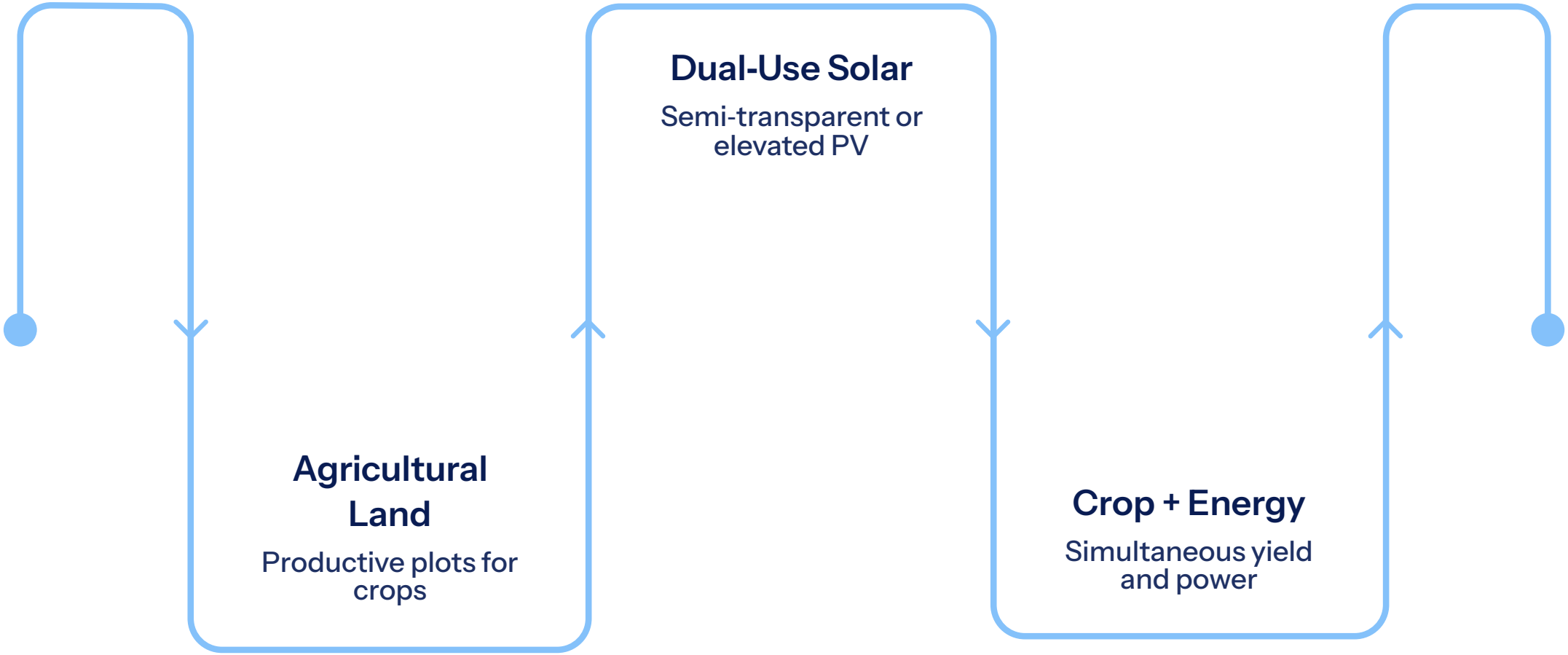
The Core Constraint

- Israel ranks among the most densely populated countries in the OECD
- Available flat land for utility-scale ground-mount PV is extremely limited
- Competing land uses: agriculture, military, nature reserves, urban development
- Traditional large-scale solar farms face significant permitting and siting barriers

Why This Creates Opportunity

- Standard module designs optimized for land-abundant markets do not fit Israel
- Specialized module formats (semi-transparent, bifacial) unlock otherwise unavailable sites
- Local manufacturing can tailor products directly to these constraints
- Imported commodity modules rarely address this market's specific needs

Agri-PV: Dual Land Use as Strategic Solution



Agri-PV allows the same parcel of land to produce both food and electricity simultaneously — directly addressing Israel's core land scarcity constraint while supporting national renewable energy targets.

Desert & Negev Opportunity

High Irradiance Resource

- Negev Desert covers ~60% of Israel's land area
- Annual solar irradiance among the highest in the region
- Consistent, predictable generation profile year-round

Module Performance Demands

- Extreme heat: standard modules lose efficiency above 25°C — Negev regularly exceeds 40°C
- Sand abrasion and dust accumulation require robust encapsulation and glass surfaces
- Bifacial modules capture reflected albedo from sand and light-colored soils

Local Manufacturing Advantage

- Modules engineered for desert conditions outperform standard imports in this climate
- Reduced logistics costs and lead times versus Asian imports
- Ability to iterate product specifications based on local field data

Technology Differentiation: Bifacial & Semi-Transparent

Criterion	Bifacial Modules	Semi-Transparent Modules
Primary Application	Desert / ground-mount with high albedo	Agri-PV, greenhouses, BIPV
Energy Yield Gain	+5–15% vs. monofacial (site-dependent)	Adjustable light transmission for crops
Glass Configuration	Glass-glass (dual-side exposure)	Reduced cell density or patterned layout
Encapsulant Requirement	TPO preferred; low yellowing critical	Optical clarity essential; EVA or TPO
Strategic Fit for Israel	Negev desert installations	Agricultural zones, dual-use permits

Local Manufacturing Advantages

Supply Chain Independence

- Eliminates dependency on Chinese commodity module imports
- Reduces exposure to shipping delays and import duties
- Enables just-in-time delivery to domestic project developers

Product Customization

- Modules designed for Israeli climate: heat tolerance, dust resistance
- Flexible product mix: standard, bifacial, semi-transparent on one line
- Fast iteration based on local installer and developer feedback

Strategic & Economic Value

- Creates high-skilled industrial employment locally
- Supports national energy security objectives
- Positions Israel as a regional technology exporter (Jordan, Egypt, Gulf states)

Flexible Production Concept

1

Phase 1 — Line Setup & Qualification

Turnkey line installation and process qualification (months 1–6)

Initial production: standard monofacial modules for domestic market

2

Phase 2 — Product Diversification

Bifacial glass-glass modules introduced for Negev desert projects

Process parameters adjusted for TPO encapsulant and dual-glass format

3

Phase 3 — Agri-PV Module Production

Semi-transparent module variants qualified for agricultural applications

Collaboration with agri-PV project developers for custom specifications

4

Phase 4 — Regional Export

Capacity utilization expanded through export to neighboring markets

TÜV-certified module designs support access to regulated export markets

Investment Logic

Demand-Side Drivers

- Israel has binding renewable energy targets requiring rapid capacity deployment
- Domestic module supply is currently zero — all demand served by imports
- Agri-PV and desert projects require specialized modules not available off-the-shelf
- Government incentives for local industrial investment and energy independence

Supply-Side Economics

- Flexible turnkey line concept reduces entry barrier for first-mover manufacturer
- CAPEX comparable to standard PV line; modular scale-up path available
- Ramp-up within 6–12 months enables early market capture
- Multi-product line supports margin differentiation vs. commodity importers

FAQ Highlights

Is the Israeli market large enough to justify local manufacturing?

- At 20–100 MW/year, a local line serves a meaningful share of domestic demand
- Export to regional markets (Jordan, Egypt, Gulf) provides additional volume upside
- Niche product differentiation (bifacial, semi-transparent) reduces direct commodity competition

Does local manufacturing require prior PV industry experience?

- A proven turnkey manufacturing concept includes full operator and process training on-site
- No prior solar manufacturing experience required for the investing entity
- Line supplier retains process responsibility through qualification and ramp-up

How does product certification work for Israel?

- IEC-standard lamination and process control are prerequisites for module certification
- TÜV-certifiable module designs can be included in the turnkey scope
- Certified products also qualify for EU and US export markets

Strategic Conclusion

1

Unique Market Window

Israel's land constraints and climate conditions create demand for specialized modules that commodity imports cannot efficiently serve

2

Technology Is Available

Proven flexible turnkey manufacturing concepts exist today — bifacial and semi-transparent production on a single line is technically feasible at Israel-relevant scale

3

First-Mover Advantage

No domestic manufacturer currently exists — the investor entering now captures the full benefit of an uncontested local supply position

An experienced European turnkey provider delivers the full manufacturing concept — from factory planning to certified production — reducing the technical and commercial risk for a first-time manufacturer in Israel.

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

www.jvg-thoma.com

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