

fNavigating the Regulatory Landscape: A Guide to Establishing a Manufacturing Plant in Bulgaria

EU Market Access, Regulatory Roadmap & Industrial Site Selection

Content Partner: J. v. G. technology GmbH

Turnkey solar module production lines — since 1997

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Technical Overview: Establishing a Manufacturing Plant in Bulgaria



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

PV

Project Type

Manufacturing plant / PV module production – turnkey concept delivered by a proven European provider

BG

Region

Bulgaria / European Union – assessed across key industrial zones and SEZ-equivalent designations

EU

Key Factor

EU industrial access – tariff-free single market, Net-Zero Industry Act alignment, EU funding eligibility

18M

Timeline

12–18 months from site selection to operational readiness – subject to permitting and construction phases

📄 Project type: Manufacturing plant / PV module production · Region: Bulgaria / European Union · Key factor: EU industrial access · Main challenge: Regulatory & permitting process · Timeline: 12–18 months · Source: PVKnowHow / J.v.G. Technology GmbH

Bulgaria's Industrial Landscape: Strategic Context

National Industrial Baseline

- EU member state since 2007 — lowest corporate tax rate in the EU at 10%; competitive labour costs vs. Western Europe
- Solar module production represents a significant industrial first-mover opportunity in the Bulgarian manufacturing sector
- Bulgaria's National Energy and Climate Plan (NECP) targets 7 GW of solar capacity by 2030 — creating sustained domestic demand
- Investment promotion administered by the InvestBulgaria Agency under the Investment Promotion Act

Policy & EU Regulatory Framework

- Net-Zero Industry Act (NZIA) agreed in principle February 2024 — sets 40% EU self-sufficiency benchmark for strategic technologies including solar PV
- REPowerEU and the European Green Deal translate into tangible financial support through EU Cohesion and Structural Funds
- Bulgaria's National Recovery and Resilience Plan (NRRP) allocates significant funding to green transition and high-tech manufacturing
- Priority investment certificates available for qualifying projects — inter-agency working group support for designated strategic investments

Regulatory & Permitting Roadmap

Phase 1: Legal Establishment

- Register a Bulgarian legal entity (OOD/EOOD) — prerequisite for all subsequent permit applications
- Apply for Investment Promotion Act classification — Class A certificate unlocks institutional support and fast-track coordination
- Engage InvestBulgaria Agency and local legal counsel from project inception
- Remote company registration possible via power of attorney granted to a local law firm

Phase 2: Site & Environmental Approvals

- Site-specific zoning and land use designation review — industrial zone or conversion of agricultural/brownfield land
- Environmental Impact Assessment (EIA) required for manufacturing facilities above applicable thresholds
- Bulgarian EIA decisions capped at 1–2 months after submission under current national framework
- Projects in coal-transition zones (Stara Zagora, Pernik, Kyustendil) receive preferential EU funding consideration under the Just Transition Fund

Phase 3: Construction & Operational Permits

- Construction permit issued by the municipal authority following approved design documentation
- Grid connection application submitted to the relevant distribution operator or ESO (transmission) — granted on a first-come, first-served basis
- Generation licence required from EWRC for facilities above 20 MW capacity
- Final operational approval issued upon completion of commissioning and technical inspection

Industrial Zone & Site Selection: Key Locations

Sofia Region

- Capital region — proximity to government ministries and regulatory bodies; strong administrative workforce
- Established industrial parks with available brownfield and greenfield land
- Well-developed road and rail access; Sofia International Airport supports component airfreight
- Higher land and labour costs relative to other Bulgarian regions — offset by regulatory proximity and infrastructure depth

Plovdiv / Southern Region

- Bulgaria's second largest industrial city — strongest existing manufacturing base and skilled technical workforce
- Direct access to Pan-European Corridor IV (Dresden–Istanbul) — major road and rail artery for EU market distribution
- High solar irradiation levels in southern Bulgaria — advantageous for on-site captive solar generation
- Site of recent greenfield solar manufacturing investments — sector-specific ecosystem beginning to form

Coal Transition Zones (JTF-Designated)

- Stara Zagora, Pernik, Kyustendil — designated Just Transition Fund territories eligible for preferential EU co-financing
- Transitioning coal workforce offers cost-competitive technical labour with prior industrial experience
- Higher EU grant funding rates available; strong political narrative for priority investment classification
- Infrastructure maturity varies — site-specific due diligence on grid and transport access is essential

EU Market Access: The Core Strategic Rationale

Factor	Context	Implication for Manufacturer
Tariff-free single market	Bulgaria's EU membership grants zero-tariff access to all 27 member states – non-EU imports face duties that raise final price	Inherent price advantage vs. Asian imports for EU-destined sales; no customs friction across the single market
Net-Zero Industry Act (NZIA)	40% self-sufficiency benchmark for solar PV by 2030 – EU plans to grow from 263 GW to ~600 GW of solar capacity	Structural policy tailwind for EU-based manufacturers; procurement preferences in public tenders being developed
EU demand scale	Europe added over 55 GW of solar capacity in 2023; Bulgaria's NECP targets 7 GW by 2030 (~700 MW annual demand)	Stable, predictable domestic demand base plus export optionality to Western European markets
China supply risk	Over 95% of EU solar panels currently imported from China – geopolitical and supply chain concentration risk recognised at EU level	EU-manufactured product increasingly differentiable on provenance, ESG, and resilience criteria

Power Grid & Utilities Assessment

Factor	Current Situation	Implication for Solar Manufacturer
Grid reliability	High-voltage transmission operated by state-owned ESO – three licensed regional distribution companies; EU-standard grid infrastructure	Industrial grid reliability significantly higher than non-EU markets – captive solar generation still advantageous for cost and resilience
Grid connection	First-come, first-served basis – speculative projects can block capacity; no formal tender system currently in place for new connections	Early application is critical – delay in connection request risks capacity blockage by competing projects
Licensing threshold	Generation facilities above 20 MW require EWRC licence; below 20 MW connects to distribution operator	Factory-scale captive solar systems must be planned within the relevant licensing framework from design stage
Energy cost structure	Bulgaria has competitive industrial energy costs within the EU – on-site solar PV reduces exposure to wholesale price volatility	Captive generation strategy lowers operating cost and improves competitiveness of manufactured product

Logistics & Transport Corridors

Bulgaria's Connectivity Advantage

- Black Sea coastline with two deep-water ports: Varna and Burgas — EU customs clearance is standardised and predictable
- Integrated into four Pan-European Transport Corridors: IV, VIII, IX, and X — direct road and rail routes to major EU economic centres
- Sea transit time from Asia: 30–45 days — inventory buffer requirements must be factored into working capital planning
- Raw material inputs (solar cells, EVA film, backsheets, aluminium frames, glass) primarily sourced from Asia — maritime route reliability is critical

Road & Rail Infrastructure

- Main arterial highways EU-funded and modernised — Corridor IV connects factory sites to Istanbul, Central Europe, and the Adriatic
- Corridor VIII (east-west) links Varna/Burgas ports directly to Adriatic Sea — multimodal export capability
- Rail network available for heavy or oversized production line equipment — specialist route surveys required for large-dimension loads
- Secondary road access to specific industrial sites requires site-level due diligence — not all designated zones have fully improved access roads

EU Distribution Reach

- Finished modules can be trucked or railed efficiently to Germany, the Netherlands, Austria, and Italy — primary EU export markets
- Bulgaria's geographic position provides access to South-East European markets and Turkey with shorter lead times than Western-EU-based producers
- Corridor network transforms a Bulgarian factory into a connected EU distribution hub — not a peripheral manufacturing location

EU Funding & Investment Incentives

1

EU Cohesion & Structural Funds

Operational Programme

"Competitiveness and Innovation" — approx. €1.14B budget; supports technological modernisation and export potential of Bulgarian manufacturing firms. Projects must be fully defined before application.

2

Recovery & Resilience Facility (RRF)

Bulgaria's NRRP channels
NextGenerationEU grants and loans toward green transition and digital transformation. High-tech manufacturing projects align directly with stated NRRP priorities; significant tenders under the NRRP are in preparation.

3

Just Transition Fund (JTF)

Coal-dependent territories (Stara Zagora, Pernik, Kyustendil) receive preferential JTF consideration and higher co-financing rates. Establishing a solar factory in these regions provides a strong strategic narrative aligned with EU transition policy objectives.

i A proven turnkey manufacturing concept from an experienced European provider integrates EU funding strategy into the investment planning phase — grant eligibility is assessed at project design stage, not as a post-investment afterthought.

Key Investor Risks

Permitting & Regulatory Risk

- Grid connection capacity can be blocked by speculative projects on a first-come, first-served basis — early application is non-negotiable
- EIA timelines vary by project scale and location — industrial facilities require full environmental assessment; delays can occur if documentation is incomplete at submission
- Regulatory changes in progress: Bulgaria is considering introducing a tender system for grid connections — regulatory landscape may shift during investor planning horizon

Market & Competition Risk

- Competing on cost-per-watt against large Asian manufacturers in the open EU market is structurally challenging — product differentiation and niche positioning (bifacial, Agri-PV, BIPV) reduce this exposure
- European solar manufacturing capacity fluctuates — approximately half of EU module assembly capacity was reported at risk in early 2024; policy environment is still evolving
- NZIA procurement benchmarks are non-binding in current form — investor cannot rely solely on policy preference as a demand driver

Operational & Supply Chain Risk

- Component inputs (cells, glass, EVA, backsheet) remain predominantly Asian-sourced — 30–45 day sea transit times require disciplined inventory management
- EU customs clearance is standardised but rigorous — any non-compliance with import documentation causes material delays to production scheduling
- Early engagement with InvestBulgaria Agency, local legal counsel, grid operator, and site utilities providers is essential prior to committing to a specific location

Market Strategy: Domestic vs. EU Export

Domestic Market (Bulgaria)

- Bulgaria's NECP targets 7 GW by 2030 — approximately 700 MW annual demand; stable, predictable base load for a new factory
- Commercial & Industrial (C&I) and prosumer segments are active and growing — lower logistics cost for in-country delivery
- A 100–200 MW production line focused on the domestic market represents a lower-risk, manageable entry point
- Standard monocrystalline PERC/TOPCon modules suit domestic C&I LCOE requirements

EU Export Market

- Tariff-free access to the world's largest single market — primary structural advantage of Bulgarian EU membership
- Key export destinations confirmed in recent investments: Germany, the Netherlands, Austria, Italy
- Niche products (bifacial, Agri-PV, BIPV) command higher margins and reduce direct cost competition with Asian producers
- Phased approach — begin with domestic market, expand production line for EU export — recommended as balanced risk pathway

Operational Readiness: Factory Integration

1

Tier 1: Captive Solar + Storage

On-site rooftop or ground-mounted solar PV with battery storage — primary captive generation; low operating cost and aligned with product category. Bulgaria has an annual average of 2,100 hours of solar irradiation — strong captive generation potential.

2

Tier 2: Grid as Baseline Supply

EU-standard grid provides reliable industrial base load — unlike non-EU markets, grid power is a viable operational input, not solely a supplement. Grid connection must be secured early; first-come, first-served allocation creates urgency.

3

Tier 3: Generator Contingency

Backup generator sets sized for critical production processes (lamination, testing) — less operationally critical than in non-EU markets but required for uninterruptible process continuity. Fuel supply chain assessed per site.

📄 A proven turnkey manufacturing concept from an experienced European provider integrates power strategy, EU certification, and grid planning into the complete factory delivery — not treated as a post-commissioning issue.

Strategic Conclusion

EU Market Access

- Tariff-free single market — structural price advantage
- NZIA policy alignment — manufacturing preference
- Proven export routes to Germany, Netherlands, Austria, Italy

Site Selection

- Plovdiv/south: best infrastructure & corridor access
- JTF zones: highest EU funding potential
- Sofia region: regulatory and administrative proximity

Permitting

- 12–18 month realistic timeline
- Grid connection: apply early — first-come basis
- Priority investment status reduces inter-agency friction

Investment Planning

- EU funding eligibility assessed at design stage
- Phased domestic-then-export strategy reduces risk
- Turnkey provider integration reduces execution risk

i Site selection and regulatory strategy are not one-time decisions — they are ongoing processes aligned with NZIA implementation, EU funding cycles, and grid connection availability. A phased assessment approach is recommended before capital commitment.

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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