FA Procedural Guide to NEPRA and AEDB Approvals for Solar Manufacturing in Pakistan

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Content Partner: J. v. G. technology GmbH

Turnkey solar module production lines — since 1997

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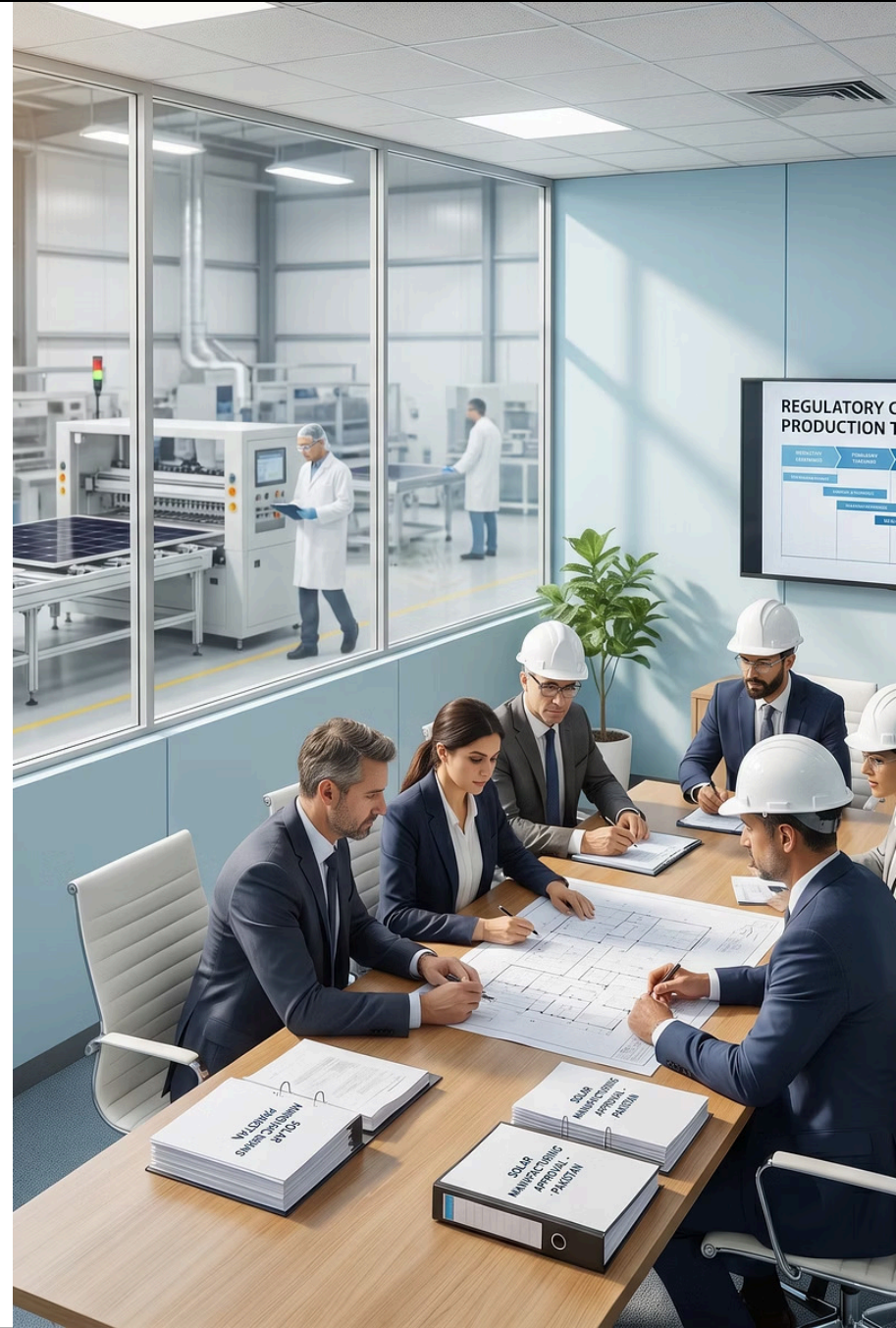

Technical Overview: NEPRA and AEDB Approvals for Solar Manufacturing in Pakistan

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

Sector

Solar module manufacturing approvals — turnkey manufacturing concept assessed by an experienced European turnkey provider

PK

Market

Pakistan — assessed against regulatory frameworks administered by AEDB and NEPRA at federal level

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Authorities

AEDB (Alternative Energy Development Board) and NEPRA (National Electric Power Regulatory Authority)

18M

Timeline

9–18 months from application submission to operational approval — subject to documentation completeness and authority workloads

Sector: Solar manufacturing approvals · Authorities: AEDB & NEPRA · Approval timeline: 9–18 months · Market: Pakistan · Focus: Solar module manufacturing · Source: PVKnowHow / J.v.G. Technology GmbH

AEDB: Role and Functions

Mandate & Authority

- Statutory body established under the AEDB Act 2010 — primary federal authority for promotion and development of renewable energy in Pakistan
- Issues Letters of Intent (LOIs), development licences, and endorsements required for renewable energy manufacturing projects
- Coordinates with provincial governments, NEPRA, and line ministries on project approvals
- Administers the ARE Policy 2019 — provides the policy basis for investor engagement and fiscal incentives

Relevance to Solar Manufacturing

- Manufacturing facilities seeking fiscal incentives (customs duty and sales tax exemptions) must obtain AEDB endorsement as a qualifying renewable energy project
- AEDB coordinates with the Federal Board of Revenue (FBR) for import duty concessions on manufacturing inputs — cells, glass, EVA, backsheet, aluminium frames
- Projects designated as priority renewable energy manufacturing attract inter-agency facilitation support through AEDB's investment promotion function
- AEDB endorsement is a prerequisite documentation requirement for the NEPRA licence application process

NEPRA: Role and Functions

Mandate & Authority

- Established under the Regulation of Generation, Transmission and Distribution of Electric Power Act 1997 — independent federal regulator for the electricity sector
- Issues generation licences required for any electricity generation facility above 1 MW connected to the national grid or operating as a captive power plant supplying third parties
- Determines applicable tariffs and sets the regulatory framework for power purchase agreements (PPAs) with distribution companies (DISCOs)
- NEPRA approval is the final regulatory gate before commercial operation of a generation-capable manufacturing facility

Relevance to Solar Manufacturing

- Solar manufacturing plants with captive solar generation above 1 MW are subject to NEPRA licensing — on-site power generation for own consumption requires a separate assessment
- Facilities intending to sell surplus electricity to the grid require a full generation licence and must comply with NEPRA's net metering or wheeling regulations
- NEPRA's licensing timeline is formally 60 days after a complete application — in practice 3–9 months depending on documentation quality and authority workload
- NEPRA has separate procedures for captive generation, net metering, and grid-connected bulk supply — correct categorisation of the facility is critical at application stage

Approval Pathway: Step-by-Step

Phase 1: Legal & Corporate Establishment

- Register a Pakistani legal entity (Private Limited Company) with the Securities and Exchange Commission of Pakistan (SECP) — prerequisite for all regulatory applications
- Obtain National Tax Number (NTN) from FBR — required for all import duty concession and fiscal incentive applications
- Open a corporate bank account — foreign currency accounts permissible under State Bank of Pakistan (SBP) guidelines for foreign investors
- Engage local legal counsel and a Pakistan-registered engineering consultant from project inception — not optional at this stage

Phase 2: AEDB Endorsement & Federal Approvals

- Submit project proposal to AEDB — includes technical feasibility, manufacturing capacity, investment volume, and employment projections
- AEDB issues a Letter of Intent (LOI) — formal acknowledgement of project eligibility; required before provincial and NEPRA applications proceed
- Apply to FBR via AEDB channel for import duty and sales tax exemptions on manufacturing plant and equipment under SRO notifications
- Coordinate with the Board of Investment (BOI) for investor facilitation, industrial zone designation, and potential Special Economic Zone (SEZ) status

Phase 3: NEPRA Licence & Operational Clearances

- Submit NEPRA generation licence application — must include AEDB endorsement, site ownership/lease documentation, single-line diagrams, and technical specifications
- NEPRA may request additional information (RAI) — response time is tracked; delays in RAI response extend the formal 60-day clock
- Obtain No-Objection Certificates (NOCs) from provincial Environmental Protection Agency (EPA) — environmental screening or full EIA required depending on production scale
- Final operational clearance issued after commissioning inspection and confirmation that installed capacity matches licensed parameters

Documentation Requirements

Document	Issuing Authority / Source	Stage Required
Certificate of Incorporation	Securities and Exchange Commission of Pakistan (SECP)	Phase 1 — precondition for all applications
National Tax Number (NTN)	Federal Board of Revenue (FBR)	Phase 1 — required for fiscal incentive applications
AEDB Letter of Intent (LOI)	Alternative Energy Development Board	Phase 2 — prerequisite for NEPRA application
Technical Feasibility Report	Prepared by investor / engineering consultant	Phase 2 — submitted with AEDB application
Site Ownership or Long-Term Lease Agreement	Provincial Revenue Authority / landlord	Phase 2–3 — required by both AEDB and NEPRA
Environmental NOC / EIA Approval	Provincial Environmental Protection Agency (EPA)	Phase 3 — required before NEPRA licence issued
NEPRA Generation Licence Application (Form GL)	National Electric Power Regulatory Authority	Phase 3 — core licensing document
Single-Line Electrical Diagram	Prepared by licensed electrical engineer	Phase 3 — mandatory NEPRA submission requirement

Timeline & Critical Path

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Months 1–3: Establishment & AEDB

SECP incorporation, NTN registration, BOI registration, site identification and lease negotiation. AEDB project proposal submission and LOI issuance — typically 4–8 weeks after complete submission. FBR duty concession application initiated in parallel.

2

Months 3–9: Environmental & NEPRA

Provincial EPA environmental screening or full EIA — 2–6 months depending on project scale and provincial authority workload. NEPRA generation licence application submitted with full documentation package. NEPRA RAI cycle may extend this phase.

3

Months 9–18: Construction & Commissioning

Construction permit from local municipal authority. Factory construction and equipment installation — timeline governed by turnkey provider's delivery schedule. Commissioning inspection by NEPRA and provincial authority. Final operational clearance issued.

ⓘ The 9–18 month range assumes complete and accurate documentation at each submission stage. Incomplete applications at AEDB or NEPRA reset the formal review clock — documentation quality is the primary variable within investor control.

Key Investor Risks

Regulatory & Documentation Risk

- Incomplete documentation at AEDB or NEPRA submission stage resets the formal review timeline — pre-submission documentation audit is non-negotiable
- NEPRA's RAI (Request for Additional Information) process can extend licensing by 3–6 months if technical submissions are insufficiently detailed
- Provincial EPA requirements vary between Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan — federal approvals do not substitute for provincial environmental NOCs

Grid & Power Infrastructure Risk

- Pakistan's national grid operates under chronic capacity and reliability constraints — captive solar generation with battery storage is operationally essential, not optional
- Grid connection timelines for new industrial consumers can extend 6–12 months beyond licence issuance — early engagement with the relevant DISCO or NTDC is critical
- Unplanned power outages directly impact lamination, testing, and quality assurance processes — backup generation must be sized for uninterruptible critical processes

Market & Supply Chain Risk

- Component inputs (cells, glass, EVA, backsheet) are predominantly Asian-sourced — 30–45 day sea transit times to Pakistani ports require disciplined inventory planning and working capital management
- Pakistan's import duty and sales tax regime is subject to periodic SRO amendments — fiscal incentive structures confirmed at AEDB/FBR stage may be revised during the operational phase
- Foreign exchange availability and SBP import payment approvals can create delays to component procurement — treasury planning must account for this structural constraint

Power Strategy for Manufacturing Operations

1

Tier 1: Captive Solar + Storage

On-site rooftop or ground-mounted solar PV with battery storage — primary generation source. Pakistan's annual average solar irradiation exceeds 2,000 hours in key industrial zones (Punjab, Sindh). Captive generation below 1 MW may not require a NEPRA generation licence — confirm applicable threshold at project design stage.

2

Tier 2: Grid Connection as Supplement

Grid connection from the relevant DISCO (LESCO, HESCO, SEPCO, etc.) provides supplementary base load — not a primary reliability source given national grid constraints. NTDC or DISCO connection application must be submitted early; connection timelines are uncertain and capacity-constrained in most industrial zones.

3

Tier 3: Generator Contingency

Backup generator sets sized for critical production processes (lamination, automated testing, quality assurance) — operationally essential in the Pakistan context. Fuel supply continuity (HSD) must be assessed per site location. Generator capacity should be integrated into the factory design by the turnkey provider from project inception.

An experienced European turnkey provider integrates power strategy, NEPRA licensing, and grid planning into the complete factory delivery scope — power infrastructure is not a post-commissioning consideration.

Investor FAQs

Question	Factual Response
Can a foreign investor own 100% of a Pakistani manufacturing company?	Yes — Pakistan's investment policy permits 100% foreign equity in manufacturing. Registration is with SECP and the Board of Investment. Repatriation of profits is permitted under SBP regulations.
Are there import duty exemptions on manufacturing equipment?	Yes — AEDB-endorsed renewable energy manufacturing projects can access duty and sales tax exemptions on plant and machinery under applicable SRO notifications. FBR confirmation required at application stage.
Is NEPRA approval required for captive solar below 1 MW?	Facilities below 1 MW for own consumption may fall under net metering regulations rather than a full generation licence. The applicable threshold and procedure must be confirmed with NEPRA at project design stage — regulatory interpretation can vary.
Does the approval pathway differ by province?	Federal approvals (AEDB, NEPRA, FBR) are uniform. Provincial approvals (EPA NOC, land use, construction permit, local municipal authority) vary between Punjab, Sindh, KPK, and Balochistan — site selection must include a province-specific regulatory assessment.
What is the realistic minimum approval timeline?	9 months is achievable with complete documentation, an experienced local legal and regulatory team, and no RAI delays at NEPRA. 18 months should be used for conservative financial planning. Delays beyond 18 months are possible if documentation is incomplete at submission.

Market Strategy: Domestic vs. Export

Domestic Market (Pakistan)

- Pakistan's solar PV market has grown significantly — import volumes exceeding 10 GW in recent years; domestic manufacturing capacity remains limited relative to demand
- Commercial & Industrial (C&I) and net metering segments are active and growing — lower logistics cost for in-country delivery; no import duties on domestically manufactured product
- A 100–200 MW production line focused on the domestic market represents a lower-risk, manageable entry point with established demand
- Standard monocrystalline PERC/TOPCon modules suit domestic C&I and utility-scale LCOE requirements

Export Market Considerations

- Pakistan-manufactured modules face standard import duties in EU and other major markets — no equivalent tariff-free access comparable to an EU-based manufacturing location
- Pakistan's lower labour and land costs provide a potential cost-per-watt advantage for export — most relevant in markets where Asian import duties apply
- Niche products and specific buyer relationships can support export positioning — requires product quality certification (IEC, UL) obtained prior to export market entry
- Phased approach — establish domestic market first, assess export pathways after operational stabilisation — is the analytically supported risk management strategy

Strategic Conclusion

Regulatory Pathway

- Sequential: SECP → AEDB → EPA → NEPRA
- Documentation completeness is the primary timeline variable
- Provincial requirements are not substituted by federal approvals

Authority Engagement

- AEDB: endorse project, access fiscal incentives
- NEPRA: generation licence — apply with complete package
- BOI: investor facilitation and SEZ access

Timeline & Risk

- 9–18 months: realistic planning range
- Captive solar + storage: operationally essential
- RAI delays at NEPRA: primary controllable risk

Investment Planning

- Domestic market first — lower-risk entry point
- Fiscal incentives confirmed at design stage, not post-investment
- Experienced turnkey provider reduces execution risk

Regulatory strategy and documentation preparation are not one-time events — they require ongoing management aligned with AEDB policy updates, NEPRA procedural changes, and provincial EPA requirements. A phased, expert-guided 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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