

Solar Energy Systems Implementer – AI ERP Ticketing OS

Rooftop · Ground-mount · EPC · O&M · Battery storage · Net metering

Lead to commissioning · Performance monitoring · Warranty management

1. Solar EPC Execution Flow (Lead → O&M)

ID	Dept	Process	Activity	Progress %
9001	Sales	LEAD	Customer inquiry (rooftop / ground)	5
9002	Engineering	DESIGN	Site survey, shading analysis, PVsyst simulation	10
9003	Procurement	PANELS & INVERTERS	Purchase modules, inverters, mounting structures	20
9004	Logistics	RECEIPT	Inward QC (visual, flash test, IV curve)	25
9005	Project	SITE PREP	Roof / ground foundation, mounting layout	35
9006	Installation	MOUNTING & PANEL FIXING	Structure installation, module placement	50
9007	Electrical	WIRING & INVERTER	DC wiring, inverter placement, AC panel	60
9008	Commissioning	TESTING & GRID SYNC	Insulation resistance, polarity, net meter activation	75
9009	QA/QC	FINAL INSPECTION	Safety, performance ratio, earthing	85
9010	Customer	HANDOVER	Training, documentation, warranty registration	95

ID	Dept	Process	Activity	Progress %
9011	Service	O&M (Annual)	Panel cleaning, inverter firmware, performance monitoring	100

2. Workflows & Critical Control Points

Residential Rooftop

Lead → Design → Approval → Procurement → Installation → Net meter → Commission → Remote monitoring

Commercial / Industrial

Tender → Detailed engineering → Module supply → Electrical works → SCADA integration → PPA billing

Operations & Maintenance

Auto performance alert → Cleaning ticket → Inverter diagnostics → Spare replacement → Report to customer

- **CCP:** Module flash test before install, grounding resistance (<1 ohm), inverter AC voltage stability, PR >80% at commissioning.

3. Milestone-Based Payment (Solar EPC)

Milestone	Condition	Payment %
Contract & advance	Signed BOQ, payment schedule	20%
Material delivered to site	Inward QC passed, stacking area	30%
Module mounting complete	Structure installed, panel orientation correct	20%
Commissioning & grid sync	Net meter installed, generation test	20%
Final handover & training	Customer sign-off, O&M manual given	10%

4. ERP Modules & AI Automation

Lead & CRM (solar calculator)
Engineering (PVsyst, layout)
Procurement (panel/inverter tracking)
Project management (Gantt, resource)
Inventory (panels, cables, mounting)
Monitoring (SCADA, IoT inverter)
Service (O&M tickets, cleaning)
AI: yield prediction, fault detection

AI Function	Automation
Performance degradation alert	AI compares actual vs expected generation → cleaning or shade ticket
Inverter fault prediction	Thermal images + electrical data → predicts failure 7 days ahead
Route optimisation for O&M	Multiple sites → AI plans visit order to minimise travel
Auto PPA billing	Meter reading (IoT) → invoice generation → payment reminder

5. Final Architecture & Traceability

Lead → Design → Procure → Install → Test → Commission → O&M

- ☑ Every solar panel serial number tracked from factory to installation – performance tickets over 25 years.
- Panel serial #, inverter #, installer ID, commissioning date, warranty expiry.



Solar Dashboards

- Installation pipeline (MWp), project delay %
- Generation vs design (PR, CUF), inverter uptime
- O&M ticket closure time, cleaning frequency
- Carbon offset (tonnes CO2), ROI per customer

 AI ERP TicketingOS – Solar EPC & O&M. Print to PDF.