Solar Power Plant

Bill of Materials (BOM) Installation & Commissioning Checklist

Project Name:	
Site Location:	
Date:	

Checked By: _____

Approved By: _____

Capacity (MW): _____

☀	**1. Solar PV Modules**
☐	Monocrystalline / Polycrystalline / Bifacial modules received and quantity verified
☐	Module datasheets, test reports (IEC 61215 / IEC 61730) and warranty documents collected
☐	Physical inspection — no cracks, delamination or damaged frames
☐	Module nameplate ratings match the BOM specifications
☐	Module mounting accessories (clamps, mid/end clips) available in correct quantity
⚡	**2. Solar Inverters**
☐	String / Central / Hybrid inverters received and model verified against BOM
☐	Inverter manuals, warranty certificates and IEC test reports on file
☐	DC input voltage range and AC output ratings match design specifications
☐	Power Conditioning Units (PCU) / Grid-tie functionality tested and confirmed
☐	Inverter communication ports (RS485 / Ethernet / Wi-Fi) functional

	3. Module Mounting Structure
☐	Hot-dip galvanized steel / aluminium mounting structures delivered and counted
☐	Structure design drawings approved by structural engineer
☐	Foundation bolts, fasteners and clamps available and verified for grade/size
☐	Tilt angle and azimuth orientation confirmed per design for maximum yield
☐	Corrosion-resistant coating quality checked (no bare metal exposed)
	4. DC Side Equipment
☐	DC cables (correct cross-section and UV-resistant rating) received and measured
☐	DC combiner boxes installed and string fuses verified
☐	DC isolators rated for system voltage installed at inverter input
☐	MC4 connectors crimped correctly — no loose or mismatched connectors
☐	Cable ties, conduits and accessories installed with adequate support spacing
☐	DC voltage and polarity of each string verified before connecting to combiner
	5. AC Side Equipment
☐	AC cables sized correctly and installed with proper insulation rating
☐	AC distribution boards (ACDB) installed and breaker ratings confirmed
☐	MCBs / MCCBs / ACBs installed and trip settings documented
☐	AC isolators installed at inverter output and at grid connection point
☐	Protection relays (over/under voltage, frequency, anti-islanding) configured and tested
	6. Transformers & Switchgear
☐	Distribution / Power transformer received, ratings verified, oil level checked
☐	Transformer protection relay (Buchholz, OTI, WTI) installed and set
☐	Vacuum / SF6 circuit breakers installed, tested and trip mechanism verified
☐	Load break switches operational and interlocks confirmed
☐	Metering panels — energy meters calibrated and CT/PT ratios verified

☐	Auxiliary transformer for station supply installed and tested
	7. Earthing & Lightning Protection
☐	Copper-bonded / GI earthing electrodes installed to specified depth
☐	Earth resistance measured per IS 3043 / IEC 60364 — value within limits (<1 Ω for plant)
☐	Earth enhancement compound filled around electrodes in high-resistivity soil
☐	GI strips (50mm × 6mm) and copper strips/wires connected and bonded
☐	Earth pit chambers installed with test links and identification tags fixed
☐	Lightning arrestor masts, air terminals and down conductors installed
☐	Surge Protection Devices (SPDs) installed on DC and AC panels
	8. Monitoring, SCADA & Communication
☐	SCADA server installed, commissioned and connected to plant network
☐	Data loggers configured to record irradiance, temperature, power and energy
☐	Network switches and fiber optic / Ethernet cabling installed and tested
☐	Remote monitoring software operational — real-time data visible on dashboard
☐	Inverter communication verified on SCADA — all devices listed and reporting
☐	Alarm and fault notification system tested (email / SMS alerts functional)
	9. Civil Works & Cable Management
☐	Concrete foundations cast to approved drawings, curing period completed
☐	Cable trenches excavated, bedded with sand, cables laid and covered
☐	Cable trays, ladders and ducts installed with proper grounding
☐	Cable markers and route identification tags fixed at all joints and entries
☐	Internal roads, drainage and perimeter fencing completed
	10. Safety, Testing & Final Sign-Off
☐	All personnel wear PPE (helmet, gloves, safety shoes, arc-flash protection) during commissioning
☐	Fire extinguishers placed at inverter room, control room and transformer yard

☐	Safety signboards and warning labels fixed on all HV/LV panels and fences
☐	Insulation resistance (IR) test completed for all cables and motor windings
☐	Polarity, phase sequence and synchronisation verified before grid connection
☐	Performance ratio (PR) and CUF measurements recorded at commissioning
☐	As-built drawings, test reports and O&M manuals handed over to client
☐	All punch-list items cleared and final inspection sign-off obtained

Contractor/Tenderer Signature	**Client / Owner Signature**	**Commissioning Engineer**
Name: Sign: Date:	Name: Sign: Date:	Name: Sign: Date: