

# **BILL OF QUANTITIES (BOQ) - COMMERCIAL SOLAR PV PROJECT**

**Project Name:** \_\_\_\_\_

**Project Location:** \_\_\_\_\_

**Project Capacity:** \_\_\_\_\_ kWp

**Date:** \_\_\_\_\_

**Prepared By:** \_\_\_\_\_

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## **1. DC SIDE COMPONENTS**

### **1.1 Solar PV Modules**

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
1.1.1	Solar PV Modules	Mono PERC/TOPCon, <b>W</b> , <b>Efficiency ≥%</b>	Nos			
1.1.2	Module Cleaning Kit	Manual cleaning tools	Set			

### **1.2 Module Mounting Structure (MMS)**

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
1.2.1	Mounting Rails	Aluminum/GI, Anodized	kg/m			
1.2.2	Roof Anchors/Ballast	As per roof type	Nos			
1.2.3	Module Clamps	End & Mid clamps	Nos			
1.2.4	Grounding Clips	Stainless steel	Nos			
1.2.5	Fasteners & Hardware	SS304 grade	Set			
1.2.6	Walkways (if required)	Aluminum/GI	m <sup>2</sup>			

### 1.3 DC Cables & Accessories

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
1.3.1	DC Cable (String)	4/6 mm <sup>2</sup> Solar cable, UV resistant	m			
1.3.2	DC Cable (Array to DCDB)	16/25/35 mm <sup>2</sup> XLPE	m			
1.3.3	MC4 Connectors	Male & Female pairs	Pairs			
1.3.4	Y-Connectors	MC4 Y-branch	Pairs			
1.3.5	Cable Ties & Clips	UV resistant	Nos			
1.3.6	Cable Trays	Perforated GI	m			

### 1.4 DC Combiner Boxes (DCDB)

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
1.4.1	DCDB Enclosure	IP65, Thermoplastic/MS	Nos			
1.4.2	DC Fuses	15A, 1000V DC, gPV	Nos			
1.4.3	Fuse Holders	1000V DC rated	Nos			
1.4.4	DC SPD	Type 2, 1000V DC	Nos			
1.4.5	DC MCB/Isolator	1000V DC rated	Nos			
1.4.6	Bus Bars & Terminals	Copper, Tinned	Set			

## 2. AC SIDE COMPONENTS

### 2.1 Solar Inverters

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
2.1.1	String Inverter	—kW, 3-phase, Efficiency ≥98.5%	Nos			
2.1.2	Inverter Mounting Structure	Wall/Ground mount	Set			
2.1.3	Weather Canopy	For outdoor inverters	Nos			

### 2.2 AC Cables

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
2.2.1	AC Cable (Inverter to ACDB)	3.5C x __mm <sup>2</sup> Al/Cu XLPE	m			
2.2.2	AC Cable (ACDB to LT Panel)	3.5C x __mm <sup>2</sup> Al/Cu XLPE	m			
2.2.3	Cable Glands	Appropriate size	Nos			
2.2.4	Cable Termination Kit	Heat shrink type	Set			

### 2.3 AC Distribution Box (ACDB)

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
2.3.1	ACDB Enclosure	IP54, MS Powder coated	Nos			
2.3.2	MCCB	__A, 3P, 415V	Nos			
2.3.3	MCB	__A, 3P, 415V	Nos			
2.3.4	AC SPD	Type 2, 415V	Nos			
2.3.5	Digital Energy Meter	Class 1.0, RS485	Nos			
2.3.6	Current Transformers	__/5A, Class 1.0	Set			
2.3.7	Indication Lamps	LED type, 3-phase	Set			
2.3.8	Bus Bars & Hardware	Copper/Aluminum	Set			

### 2.4 LT Panel Integration

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
2.4.1	Incomer Breaker at LT Panel	—A MCCB/ACB	Nos			
2.4.2	Metering CT & PT	As per utility requirement	Set			
2.4.3	Net Meter	Bidirectional, DLMS compliant	Nos			

### 3. EARTHING & LIGHTNING PROTECTION

#### 3.1 Earthing System

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
3.1.1	DC Earthing (Structure)	25x3mm GI Strip	m			
3.1.2	AC Earthing	25x3mm GI Strip	m			
3.1.3	Earth Pits	GI Pipe 40mm dia, 3m length	Nos			
3.1.4	Earth Pit Chamber	With cover	Nos			
3.1.5	Earthing Compound	Bentonite/Chemical	kg			
3.1.6	Earth Connectors	Brass/GI clamps	Nos			

#### 3.2 Lightning Protection

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
3.2.1	Lightning Arrestor	ESE/Conventional	Nos			
3.2.2	Down Conductor	50mm <sup>2</sup> Cu/70mm <sup>2</sup> Al	m			
3.2.3	LA Earth Pit	Separate earth pit	Nos			

#### 4. MONITORING SYSTEM

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
4.1	Data Logger	With RS485/Ethernet	Nos			
4.2	Weather Station	Irradiation, Temp, Wind	Set			
4.3	Remote Monitoring	Cloud-based platform	Nos			
4.4	Display Unit	LED/LCD display	Nos			
4.5	Communication Cable	CAT6/RS485	m			

#### 5. SAFETY & MISCELLANEOUS

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
5.1	Safety Signages	Reflective type	Nos			
5.2	Danger Boards	Standard size	Nos			
5.3	Fire Extinguisher	CO2 type, 4.5kg	Nos			
5.4	First Aid Kit	Standard	Nos			
5.5	Insulation Mat	IS grade	Nos			
5.6	Safety Equipment	Gloves, Helmet, etc.	Set			

## 6. INSTALLATION & COMMISSIONING

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
6.1	Installation of PV Modules	Including mounting	Nos			
6.2	DC Wiring & Termination	Complete DC side	LS			
6.3	AC Wiring & Termination	Complete AC side	LS			
6.4	Testing & Commissioning	Complete system	LS			
6.5	Documentation	As-built drawings, test reports	LS			

## 7. OPERATION & MAINTENANCE (OPTIONAL)

S.No	Description	Specification	Unit	Quantity	Unit Rate	Total Amount
7.1	Comprehensive AMC	5 years	Years			
7.2	Cleaning Contract	Monthly cleaning	Years			
7.3	Spare Parts	Critical spares	LS			

## SUMMARY

Description	Amount
Total DC Side Components	
Total AC Side Components	
Total Earthing & Lightning Protection	
Total Monitoring System	
Total Safety & Miscellaneous	
Total Installation & Commissioning	
Total O&M (if applicable)	
<b>Sub Total</b>	
GST @ 18% (or applicable rate)	
<b>Grand Total</b>	

**Notes:**

1. All equipment shall comply with relevant IEC/IS standards
2. Prices are exclusive of GST unless mentioned
3. Warranty: Modules - 25 years, Inverters - 5 years minimum
4. Delivery period: \_\_\_ weeks from PO date
5. Payment terms: As per agreement
6. Validity: 30 days from date of submission