



DEENDAYAL PORT AUTHORITY

(Erstwhile Deendayal/Kandla Port Trust)



Ministry of Ports, Shipping & Waterways, Govt. of India

Mechanical Engineering Department

Office of the Executive Engineer (Electrical), Ground Floor, Nirman Building, New
Kandla, Kutch, Gujarat, Pin Code 370210.

No.: EL/AC-BO/2691

Date: 06/06/2026

BUDGETARY OFFER

Name of Work: Design, Supply, Installation, Testing & Commissioning of On-Grid Solar Rooftop power plant at various offices and other non-residential buildings at Kandla & Gandhidham with BESS system at AO Building Gandhidham with 1 year of defect liability period and thereafter eight years of CAMC period.

Executive Engineer (Electrical), DPA invites Budgetary Offers for the work of “Design, Supply, Installation, Testing & Commissioning of On-Grid Solar Rooftop power plant at various offices and other non-residential buildings at Kandla & Gandhidham with BESS system at AO Building Gandhidham with 1 year of defect liability period and thereafter eight years of CAMC period”, from those firms who have executed similar works in Government / Public Sector and other leading private organizations as per the Scope of the Work and Technical Specifications enclosed herewith.

The interested firms are requested to submit their Budgetary Offers in the BOQ format to the office of the undersigned on or before 16/06/2026 through hard or soft copy. A soft copy of Budgetary Offer shall be submitted through e-mail Id cme@deendayalport.gov.in, and copy to deepak.hazra@deendayalport.gov.in.

Signature & Seal of Contractor

Sd/-

**Executive Engineer (E)
Deendayal Port Authority**

SCOPE OF WORK

Deendayal Port Authority (DPA) is one of the Major Ports in India possessing a number of offices and other non-residential buildings at Kandla & Gandhidham, including A.O. Building at Gandhidham. The Specification is intended to cover the work of Design, Supply, Installation, Testing & Commissioning of On-Grid Solar Rooftop Power Plants on Turnkey Basis at various Offices & Buildings of DPA. The location details & DC Capacity of Rooftop Solar Power Plant to be installed & commissioned are as listed below:

Sr. No.	Name of the Location	Proposed Capacity of Rooftop Solar Power Plant to be installed & commissioned (KW)
A. O. Building (AOB), Gandhidham		
1	Electrical Substation	3 kW
2	Old Building	50.02 kW
3	Chairman's wing	43.12 kW
4	Annexes Building	24.15 kW
5	Car Parking	2.3 kW
6	Canteen	5.2 kW
Gopalpuri Colony, Gandhidham		
7	Hospital	33.75 kW
8	Electric Sub-Station 1 & 2	78.75 kW
9	Shopping Complex	20 kW
10	Guest House	31.87 kW
11	Estate Office	5.63 kW
12	Kendriya Vidyalaya	175 kW
13	Bharatiya Vidhya Mandir	37.5 kW
14	Officer's Club	48.12 kW
15	Staff Club	32.5 kW
16	STP Building	5.62 kW
Outside Cargo Jetty Area, Kandla		
17	Fire station office	7.5 KW
18	Gate Office	5.62 KW
19	Bharatiya Vidhya Mandir	37.5 KW
20	Nirman Building	26.25 KW
21	Seva Sadan-III	12.5 KW
22	Old CDC	22.5 KW
23	Port Power House	26.25 KW
24	Shramdeep Bhavan	20 KW
25	7 th Oil Jetty Substation	15 KW
26	7 th Oil Jetty Fire Fighting Building	63.75 KW
27	8 th Oil Jetty Fire Fighting Building	63.75 KW
28	Fire Fighting Building (1-4 Oil Jetty)	78.12 KW
29	Viewers Gallery	5.62 KW
Inside Cargo Jetty Area, Kandla.		
31	ATM Building	20 KW
32	Crane Section	218.8 KW

33	Immigration & Fire Building	58.12 KW
34	6 th Berth Sub Station	25 KW
35	34 Hectare Electrical Substation	25 KW
36	40 Hectare Electrical Substation	48.12 KW
37	Marine Bhavan	45 KW
38	Jetty offices	82.5 KW
39	Canteen 1 & 2	85.62 KW
40	Isolator Room	5 KW
41	West Gate 1 & 2, New Gate & North Gate	94.37 KW

The scope of work consists of Design, Supply, Installation, Testing & Commissioning of On-Grid Solar Rooftop power plant at various offices and other non-residential buildings at Kandla & Gandhidham with BESS system at AO Building Gandhidham with 1 year of defect liability period and thereafter eight years of CAMC period. The Contractor shall be responsible for all liaisoning, document submission, and obtaining necessary approvals from the Chief Electrical Inspector (CEI), Gujarat Energy Development Agency (GEDA), and Paschim Gujarat Vij Company Limited (PGVCL) / DISCOM, wherever applicable, Net Meter agreement required for the successful commissioning of the Rooftop Solar Power Plants at all specified locations. However, the Deendayal Port Authority (DPA) shall bear all statutory fees related to GEDA registration, PGVCL energy meters, and Net Metering Agreements. The contractor shall submit the detailed project report in two sets.

The contractor shall arrange for all types of tools, tackles, scaffoldings, and all the other requirements at his own cost for installation, testing & commissioning of the work. The electrical power supply will be provided free of cost by DPA, if available, however, arrangement to utilize the electrical power from the nearest point shall be in the scope of contractor. The contractor shall submit the colored layout drawing of the complete solar Rooftop Power Plant System in two sets hard copy & also the soft copy, after completion of the work to DPA. The work shall be executed to the satisfaction of the Engineer in-Charge.

TECHNICAL SPECIFICATION

Broad Scope:

A Grid Tied Photo Voltaic (SPV) power plant shall consist of SPV Array, Module Mounting Structure, BESS system (for AOB only), Power Conditioning Unit (PCU) with the Maximum Power Point Tracker (MPPT), Inverter, Controls & Protections, interconnected cables and switches.

PV Array shall be mounted on the suitable Structure.

Grid Tied SPV System shall be with Battery Energy Storage System (BESS) (for AOB only) and shall be designed with necessary features to supplement the Grid Power during Daytime but backup power facility all time, whenever PGVCL power cut off, without the break of power.

Components and Parts used in the SPV Power Plants including the PV modules, Metallic Structures, Cables, Junction Box, Switches, PCUs etc. shall be as per relevant BIS & as per IEC or International Specifications, as applicable.

Installation and Testing for the entire System shall be completed in all respects including Designing, complete Civil work, Fabrication, Cable tray & Cabling work with suitable Bolts, Nuts, Clamps, Connectors and Testing etc.

INVERTER:

- Switching Device: IGBT
- No. of Phases: 3
- Inverter Output Waveform: Pure Sinewave
- Technology: MPPT Based
- No. of MPPT per Inverter: As per design requirement.
- No. of String at input side of Inverter: As per design requirement.

- Maximum Power Point Tracker: Integrated in the PCU/Inverter to maximize energy drawn from the array.
- Operating Voltage range of Inverter: 200V to 1000V
- Overload support at Input side, DC: 15% of maximum Input Voltage
- Max DC Input Current per MPPT: - Must be $\geq 15A$ to 16A (Amperes) per string
- Service Condition: Outdoor
- Ingress Protection rating of Inverter: IP 66
- Cooling medium for Inverter: Intelligent fan cooling/ as per design requirement.
- Inverter mounting type: Wall mounted
- Standard accessories for Inverter: MC4 DC Connectors, AC Connectors, Mounting Bracket, Nuts & Bolts and Inverter manual.
- Manual switch for disconnecting DC Supply shall be provided. Isolation between Input DC and Output AC shall be provided.
- Grid Interactive String Inverter, Efficiency $>98.5\%$

INVERTER OUTPUT:

- Overall Efficiency (in %): >98
- Maximum current for 3 Phase Inverter (in A): As per design requirement.
- Output Voltage (in V): 415V for 3 Phase
- Auto-trip at Output side: Lower: at 160V, Higher: at 285V with adjustable
- Frequency range: 50 Hz ± 3
- Grid Frequency Synchronization range: As per CEA/State Regulations.
- Total Harmonics Distortion: - THD: $< 3\%$
- Grid Voltage tolerance: -20% and +15%
- PF: > 0.9 (lag or lead)
- Efficiency Measurements for Power Conditioners / Inverters: As per IEC 61683 / IS:61683
- Environmental Testing for Power conditioners / Inverters: As per IEC 60068-2 (1, 2, 14, 30) / Equivalent BIS Standard.
- PCU/Inverter shall be capable of complete automatic operation for wake-up, synchronization and shutdown. Should not inject DC power more than 0.5% of full rated output at the interconnection point and comply to IEEE 519.
- The output power factor of inverter should be suitable for all voltage ranges **or** sink of reactive power, inverter should have internal protection arrangement against any sustain fault in feeder line and against the lightning on feeder.

PROTECTION FOR INVERTER:

- Input Over Voltage Protection,
- Low/High Frequency Protection,
- Short Circuit Protection,
- Output Over Current Protection,
- Output Over Voltage Protection,
- Output Under Voltage Protection,
- Surge Protection: - FOR DC, Type 1+2 DC Photovoltaic, Current (I max) 40 kA (8/20 Micro second) as per IEC 61643-31, For AC Type 2 as per IEC 61643-11 (AC) Voltage ((U):-275V / 385V AC , Current (Imax) :- 20 kA - 40 kA {8/20 micro second}
- Grid Input Under Voltage / Over Voltage Protection with auto recovery,
- DC disconnect Device,
- DC reverse Polarity,
- Anti-Islanding Protection as per the Standard,
- Insulation Resistance Monitoring,

- Overload Protection: 110% for 1 minute,
- Over temperature Protection: At 65 °C Cooling Fan shall auto Switch-ON.
- THD shall be less than 1.5%
- Power Factor at rated Output Power: ≥ 0.9
- Earthing: SPDs must be connected to a robust, low-impedance Earthing system, typically with a 16 mm² copper conductor.
- Material of Inverter Body: Aluminum Casting.
- Ingresses Protection: - IP 66

CABLE FOR OUTPUT:

- ISI marked connecting Cables according to Inverter rating for each system: From Inverter to Net Meter.
- Conformity of the Specification for Cable: Copper Cable as per IS 694: 2010 latest and Size of cable as per design requirement.
- Cable length for output side (from Inverter to Net Meter for each System): As per site requirement.
- Cabling work at Input side for each system: With HMS PVC conduit pipe with necessary clamps and screws.
- Cabling work at Output side for each system: With HMS PVC conduit pipe with necessary clamps and screws.
- Lightning Arrestor for each Unit: As per design requirement.
- Chemical Earthing System for each Inverter: Minimum 3 Nos. & Size of Earthing Electrode as per design requirement.
- Danger Boards and Signage: As per requirement.

PV MODULE:

- Cell Technology: Bifacial, N-Type Topcon Monocrystalline, Half-Cut cell layout.
- Bifacial factor: - 80% \pm 5%.
- Tunnel Oxide Passivated Contact
- Power Output (Pmax) (in Wp): 600 Wp (Or) above.
- Module Efficiency: - 22.0% – 23.5%.
- PV Module conforming to: IEC 61215 / IS 14286 latest for Crystalline Silicon Terrestrial.
- PV Modules Construction, Testing and Safety Requirements: As per IEC 61730 (Part 1) and (Part 2) latest.
- PV Modules shall comply Salt Mist Corrosion testing: As per IEC 61701 / IS 61701 latest
- Tolerance for rated output Power of PV Module: \pm 3%
- No. of PV Module for each Solar Power Plant System: As per design requirement.
- The peak-power point voltage and the peak-power point current of any supplied module shall not vary by more than 2%.
- Protective devices against surges at the PV module shall be provided.
- Material for Module Frame (Corrosion Resistant): Anodized Aluminum (6005-T6)
- The manufacturer must provide a certified, individual factory test report (the I-V Curve Sheet) for every single solar panel delivered to site.

ARRAY STRUCTURE:

- Material of Mounting Structure: The mounting structure shall be hot dip galvanized with minimum thickness of 60 microns as per relevant BIS standard. Each structure shall have angle of inclination as per the site conditions to take maximum insolation. The Rectangular / square /circular hollow pipe section used for the structure should have a minimum thickness of 2.0 mm. However, to accommodate more capacity the angle inclination may be reduced until the plant meets the specified capacity utilization factor requirement.

Column –The minimum section(thickness) should be 60mm*40mm.

Rafter - The minimum section(thickness) should be 60mm*40mm.

Purlin - The minimum section(thickness) should be 40mm*40mm.

- The Module Mounting Structure (MMS) shall be designed to withstand a minimum wind speed of 150 km/hr.
- The fasteners used shall be made up of stainless steel.
- The structures shall be designed to allow easy replacement of any module.
- The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels.
- The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS4759.
- Material of mounting structure for mounting the modules/panels/arrays: Structural Steel, Grade: E (as per IS 2062: 2011 latest).
- Galvanization of the mounting structure: As per IS 4759 latest.
- Structures Design shall allow easy replacement of any module.
- The contractor needs to take care of the load bearing capacity of the roof and needs to arrange suitable structures based on the quality of roof to avoid damage to the slab of the building.
- Civil Structure shall be as per the Load Bearing capacity of the roof without compromising with wind speed tolerance.
- The Structures should be suitably loaded with reinforced concrete blocks of appropriate weight made out of M 30 concrete mixture.
- Minimum clearance of the structure from the roof level: The minimum clearance of the bottom most edge of solar panel from roof level has been specified as minimum 300 mm or above as varying as per site requirement.
- Foundation should be as per the roof condition. 12 mm diameter anchor-fasteners with minimum length 100 mm shall be used with proper chipping, water proofing solution and bonding of RCC block with the roof. The RCC block to be constructed so as to withstand system against wind pressure of 150 km/h.
- Debris from the site of work to be cleaned & clear by the contractor.

JUNCTION BOX:

- Junction Boxes shall be provided in the PV array for termination of connecting cables.
- Junction Box on PV Module shall be sealed type.
- Material of Junction Box shall be Fiber Reinforced Plastic (FRP).
- Ingress Protection Class: IP 66.
- Termination of Wire/Cable shall be through cable lugs.
- Input & Output Termination shall be through single or double compression cable glands as suitable for IP 66 integrity.
- Copper bus-bars/terminal blocks shall be housed in the water proof Junction Box with suitable termination threads.
- Proper Earthing System shall be provided as per design requirement for safe operation.
- Surge Protection Device shall be provided for each Junction Box.

WIND LOAD:

- The mounting structure shall be designed to withstand the minimum of wind speed of 150 km per hour.

DISPLAY FEATURE ON INVERTER:

- Type of Display: LED
- Display Parameters: DC Voltage, DC Current, AC Voltage, AC Current, Output Frequency, Power Factor.
- Display for Generating Power Data: Daily, Weekly, Monthly, Yearly with Total Generation.
- Generating Power Data Storage Facility shall be for 2 years from the date of commissioning.
- Wi-Fi/IoT Based Smart Monitoring.

NET METER:

- Approved by concerned Government Authority for connecting to the Grid, wherever applicable.

DC DISTRIBUTION BOARD:

- DC Distribution Panel to receive the DC output from the Array field with Surge Arrestors ESE grade, rating as per design requirement.
- Ingress Protection Class: IP 66.
- Bus-bar: Copper Bus-bar of size as per rating of Inverter.
- Circuit Breaker for input size (DC side) for Inverter: MCB of suitable rating.
- DCDB with SPD, Fuse and Isolator.
- SPD Comply as per IEC 61643-31/32 (For DC <3.5) kV}

CABLE FOR INPUT:

- ISI marked connecting cables according to Inverter rating for each system: PV Module to Inverter DC.
- Cable for Input: Minimum 1C × 6 Sq. mm Copper Cable as per IS 694: 2010
- Cable length for PV Module to Inverter DC: As per site requirement.

AC DISTRIBUTION BOARD:

- AC Distribution Panel Board for controlling AC power from PCU/Inverter: 3 Phase 415 Volt ± 10%, 50 Hz ± 3 Hz.
- Panel Construction: Wall/Floor mounted, air insulated, cubical type with change-over switch, as per design requirement.
- Ingress Protection Class: IP 66
- All switches and the circuit breakers, connectors shall conform to IS 60947 Part I, II & III.
- Circuit Breaker for Output side (AC side) for Inverter: MCB of suitable rating.
- NVR: - No volt relay
- ACDB with MCCB & SPD (As per IEC 61643-11 (For AC {<1.5) kV}

SCADA integration: - Web Based SCADA with Remote Monitoring.

Lightning Arrestor: - ESE Grade Lightning Arrestor. As per the design requirement.

Cable Tray: - HDG Perforated Cable Tray and its cover as per the site requirement.

Cable laying: - Cable shall be laid through various route (Hard/soft soil/RCC/Paver Block/roof/wall) as per the site condition requirements, contractor shall responsible to lay the cable, through various route as per IS 1255 standard & as per direction of DPA. Suitable cable tray with ergonomic design need to be installed for the cabling.

SPRINKLER SYSTEM: The Scope includes SITC of Automatic self-cleaning mechanism comprising sprinkler and required motor system, along with required standard pipelines (As per the site condition) for daily cleaning of Modules with Time sensor for all above locations solar panels cleaning with all arrangement including location wise water storage. Water will be provided by DPA free of cost from the tap water line or tank; however, all necessary arrangements with required materials, pumps, pipes, water drain clips & plumbing job etc. is in the scope of contractor.

Installation & Commissioning: - Complete EPC Installation and Commissioning.

- All installation works must strictly comply with the IS 1255 standard, prevailing engineering practices, and the explicit directives of the DPA.

Battery energy storage system (BESS) for Administrative Office Building (AOB): -

The scope includes DSITC of 400 KWh Battery Energy Storage System (BESS) for a solar rooftop which stores excess energy produced during the day for use at night or during power outages for AO building only. Lithium-Ion (LFP) chemistry, high efficiency (85–95%), Response Time <20ms for grid-to-off-grid switching, and safety compliance as per latest Guidelines. The BESS system, integral & associated component broad indicative schedule mentioned below, however contractor shall responsible to complete the entire work on Turnkey key basis, on EPC mode.

Feature	Standard Specification	Unit	QTY
Battery System	400 KWh LFP battery bank	Set	1
Battery Rack/Container	Outdoor IP – 66 Rated Battery Enclosure.	Lot	1
Battery Management System	Cell Level Monitoring BMS		
Power Conversion System	Bidirectional PCS as per design.	Set	1
Energy Management System	EMS with Solar Priority Charging Logic	Set	1
Hybrid Synchronization Panel	Grid Synchronization & Protection Panel	Set	1
LT Panel Integration	PCC/MDB Integration +ACDB & DCDB for Outdoor Type	Set	1
Battery DC Cable	Flexible Copper Battery Cable	Meter	As per requirement
AC Power Cable	XLPE Copper Cable	Meter	As per requirement
Earthing System	Complete Earthing for BESS	set	Complete Job
Lightning Protection	Lightning Arrestor with Earthing	Lump sum	Complete Job
Cooling system	HVAC, PAC (Precision Air Conditioning)	Lump sum	Complete Job
Fire Detection System	Smoke & Heat Detection System	Lump sum	Complete Job
Dashboard	provides real-time monitoring and control of solar assets through a graphical interface. Displays plant layouts, DC power flow, inverter performance, and grid connection status.	Lump Sum	Complete Job
Communication	Uses protocols like Modbus TCP to connect with PLCs/RTUs and field devices.	Lump Sum	Complete Job
SCADA Integration	Integrated Solar + BESS Monitoring	Set	1
Bidirectional Energy Meter	Battery Charging Source Metering	Set	1

Protection Relay	Anti-Islanding & Reverse Power Protection	Set	1
Critical Load Panel	Dedicated Critical Load Backup Panel	Set	1
Civil/Foundation Work	Foundation for Battery and PCS	Lump sum	Complete Job
Installation & Commissioning	Turnkey key basis, on EPC mode.	Lump sum	Complete Job

- 4 Pole Isolator shall be provided for isolation of Inverter output with respect to the Grid.
- Locking facility for isolation switch shall be provided.
- Power back- up minimum 2Hrs.
- BESS system shall be Integrating with existing power supply system of A.O. Building.
- BESS system shall be integrating with existing / proposed solar system through suitable AC coupled, through separate Bidirectional PCS without disturbing solar configuration.

Installation & Safety Standards

Protection Rating: Ensure the enclosure is IP66 for outdoor installations to protect against dust and water.

Certifications: Look for IEC 62133 or UL 1973 for battery safety, and UL 9540 for the overall system.

Switchover Time: It shall be seamless transfer without fluctuations, whenever power interruption happened, systems should have a transfer time of less than 20 ms.

SAFETY MEASURES: The bidder shall take entire responsibility for electrical safety of the installation(s) including connectivity with the grid and follow all the safety rules & regulations applicable as per Electricity Act,2003 and CEA Safety Regulation etc.

The contractor shall strictly adhere the regulatory guideline as per applicable GERC, CEA, BIS, DISCOM & CEA.

WARRANTY & GUARANTEE:

- Minimum Guarantee for maintaining of Output peak watt capacity: $\geq 90\%$ at the end of 10 years and $\geq 80\%$ at the end of 25 years.
- Warranty for PV Modules as per MNRE specification: 25 Years.
- Warranty for Inverter: 5 Years
- Warranty Card shall be submitted containing the details of the system and information about the system and conditions of warranty.
- For entire package of BESS system shall have 10-year warranty.
- 03 Set of Operation and Maintenance manual for each Solar PV Module shall be submitted.
- All the test reports and certificates shall be submitted to DPA.

CERTIFICATIONS:

- I. The PV Cell type, make of SPV Cell, make of SPV Module & make of PCU/Inverter, BESS system shall be BIS approved. The contractor shall submit valid BIS Certificates for the same, during the approval stage to DPA.
- II. Contractor shall provide design report of STAAD PRO for Mounting Structure of Modules for compliance of the Structural Stability which shall be duly verified by TPIA of DPA.
- III. Contractor has to submit the rooftop MMS Structural stability certificate from the valid License holder structure Engineer.
- IV. Contractor shall submit type test reports for PV Module, PCU/Inverter.

List of make for Solar Panel:

LONGI/TRINA/GOLDI/VIKRAM/REWNYSIS/RAYZON/WAAREE (or) as per MNRE approved latest ALMM (Approved List of Models and Manufacturers) Solar PV Module.

List of make for Solar Inverter:

LUMINOUS/MICROTEK/EVVO/LENTO/DELTA/ABB/HITACHI/HUAWEI/SUNGROW or BIS-certified empaneled with State DISCOM, subject to submission of relevant documents of successful operation of minimum one year in any PSUs/Government/Private Organizations.

List of make for BESS:

Pure Energy/ Luminous Power/ Tata Power Solar/ Waaree Energies Ltd.

DRAWINGS & MANUALS:

Operation & Maintenance manual/user manual, Engineering and Electrical Drawings shall be submitted along with each power plant. The manual shall include complete system details such as array lay out, schematic of the system, inverter details, working principle etc. Step by step maintenance and troubleshooting procedures shall be given in the manuals and provided to the beneficiary.

The interested firms shall inspect the site at their own expense to satisfy themselves regarding all site conditions. Submission of the tender implies that the bidder has full knowledge of the site. DPA shall not entertain regarding site conditions or difficulties encountered later.

Part -C for CAMC

- For the entire period of Comprehensive annual maintenance contract and defect liability period, contractor shall arrange all the required man & materials for successful execution of work including but not limited to all mandatory spares, consumables, tools, and tackles, vehicles, transportation, accommodation for their manpower. The contractor shall be responsible for deploy adequate number personnel & staff to maintain continuous plant operation and generation for a period of eight (8) years, commencing upon the expiry of the initial one-year Defect liability period.
- During the defect liability period and CAMC period contractor shall have to carryout all the maintenance activities including planned and breakdown as per recommendation of OEM/OPM and as per site requirements.
- The contractor shall deploy at least two nos. of technical with one additional supervisor in two shifts (0700 hrs. to 23:00 hrs.) to be stationed at AOB to look after the daily routine work, however for the maintenance and other purpose sufficient additional manpower shall be deployed by the contractor for effective utilization of power and proper maintenance of the roof top solar plant at AOB, Kandla and Gopalpuri for the entire period of defect liability period and CAMC period. Any issue not resolved within stipulate time period, contractor shall take assistance of OEM/OPM without any additional cost to the DPA. An official mobile no. for supervisor shall be provided by the contractor for round the clock contact availability with DPA. Any emergency shall be responded by the supervisor with corrective measures.
- During the CAMC period, in the event of a failure of support from the OEM, the OEM shutting down its operations, or the discontinuation of any product, the contractor shall take full responsibility for sourcing replacement solar modules, PCBs, spare parts, BESS components, and related parts from the market or equivalent MNRE ALMM approved makes. The contractor shall make all necessary arrangements to restore the system to its full functionality at no additional cost to the DPA.
- The Contractor shall clean the solar panels daily in accordance with OEM recommendations, site conditions, or as necessary to ensure peak performance. The contractor shall ensure to maintain a minimum Capacity Utilization Factor (CUF) of 20% throughout the warranty and the eight-year CAMC period.
- The Contractor shall be liable for penalties (as per tender conditions) in the event of failure to maintain the mandate Capacity Utilization Factor (CUF), non-attending the troubleshooting & system breakdowns etc.

Signature & Seal of Contractor

Executive Engineer (E)
Deendayal Port Authority

Bill of Quantity

Name of Work: Design, Supply, Installation, Testing & Commissioning of On-Grid Solar Rooftop power plant at various offices and other non-residential buildings at Kandla & Gandhidham with BESS system at AO Building Gandhidham with 1 year of defect liability period and thereafter eight years of CAMC period.

Sr. No.	Description	Qty.	Unit	Rate	Amount
Part -A Design, Supply, Installation, Testing & Commissioning of On-Grid Rooftop Solar Power Plant at various locations mentioned in scope, along with necessary liaison & taking approvals from CEI/GEDA/PGVCL as per the Scope of Work & Technical Specifications.					
Administrative Office Building, Gandhidham					
1	Electrical Substation	1	Complete Job		
2	Old Building	1	Complete Job		
3	Chairman's wing	1	Complete Job		
4	Annexes Building	1	Complete Job		
5	Car Parking	1	Complete Job		
6	Canteen	1	Complete Job		
Gopalpuri Colony, Gandhidham					
8	Hospital	1	Complete Job		
9	Electric Sub-Station 1 & 2	1	Complete Job		
10	Shopping Complex	1	Complete Job		
11	Guest House	1	Complete Job		
12	Estate Office	1	Complete Job		
13	Kendriya Vidyalaya	1	Complete Job		
14	Bharatiya Vidhya Mandir	1	Complete Job		
15	Officers Club	1	Complete Job		
16	Staff Club	1	Complete Job		
17	STP Building	1	Complete Job		
Outside Cargo Jetty Area, Kandla					
18	Fire station office	1	Complete Job		
19	Gate Office	1	Complete Job		
20	Bharatiya Vidhya Mandir	1	Complete Job		
21	Nirman Building	1	Complete Job		
22	Seva Sadan-III	1	Complete Job		
23	Old CDC	1	Complete Job		
24	Port Power House	1	Complete Job		
25	Shramdeep Bhavan	1	Complete Job		
26	7th Oil Jetty Substation	1	Complete Job		
27	7th Oil Jetty Fire Fighting Building	1	Complete Job		
28	8th Oil Jetty Fire Fighting Building	1	Complete Job		
29	Fire Fighting Building (1-4 Oil Jetty)	1	Complete Job		
30	Viewers Gallery	1	Complete Job		

Inside Cargo Jetty Area, Kandla					
31	ATM Building	1	Complete Job		
32	Crane Section	1	Complete Job		
33	Immigration & Fire Building	1	Complete Job		
34	6th Berth Sub Station	1	Complete Job		
35	34 HA Substation	1	Complete Job		
36	40 HA Sub Station	1	Complete Job		
37	Marine Bhavan	1	Complete Job		
38	Jetty Office	1	Complete Job		
39	Canteen 1 & 2	1	Complete Job		
40	Isolator Room	1	Complete Job		
41	West Gate 1 & 2, New Gate & North Gate	1	Complete Job		
Total of Part –A					
PART-B					
42	Design, Supply, Installation, Testing & Commissioning of 400 KWh BESS complete system for AO building mentioned as per the Scope of Work & Technical Specifications, on Turnkey key basis.	1	Complete Job		
Total of Part-B					
<p>43) PART-C “Comprehensive annual maintenance, with all the required man & materials for successful execution of work including but not limited to all mandatory spares, consumables, tools, and tackles, vehicles, transportation, accommodation for their manpower. The contractor shall be responsible for deploy adequate number personnel & staff to maintain continuous plant operation and generation for a period of eight (8) years, commencing upon the expiry of the initial one-year Defect liability period”.</p>					
Sr. No.	Description	Qty.	Unit	Rate (In Rs. Per Month)	Amount (In Rs. Per Year)
1	Second Year	12	Month		
2	Third Year	12	Month		
3	Fourth Year	12	Month		
4	Fifth Year	12	Month		
5	Sixth Year	12	Month		
6	Seventh Year	12	Month		
7	Eight Year	12	Month		
Total of Part –C					
Total of Part (A+B+C)					
(In words Rupees _____ only)					
(NOTE: The rates should be inclusive of all taxes, duties, fees, cess etc. and all incidental charges; but exclusive of GST).					
Signature & Seal of Contractor			Sd/- Executive Engineer (E) Deendayal Port Authority		

Payment Terms

Sr. No.	Payment Stages for Part A of Schedule-B
1	A payment of 30% of the total quoted rate (for Part A) will be released upon receipt of the all materials at the site in good condition, subject to inspection and certification by the Third-Party Inspection Agency, and acceptance by DPA.
2	A payment of 60% of the total quoted rate (for Part A) will be released upon the successful erection, installation, testing, and commissioning of the system, subject to inspection and certification by the Third-Party Inspection Agency, and acceptance by the DPA.
3	A payment of 10% of the total quoted rate (Part A) will be released upon successful completion & commissioning of the entire scope of work and receipt of all statutory approvals, subject to final inspection, certification by the Third-Party Inspection Agency, and taken over by the DPA.
Sr. No.	Payment Stages for Part B of Schedule-B
1	A payment of 30% of the total quoted rate (Part B) will be released upon receipt of the all materials at the site in good condition, subject to inspection and certification by the Third-Party Inspection Agency, and final acceptance by the DPA.
2	A payment of 60% of the total quoted rate (Part B) will be released upon the successful erection, installation, testing, and commissioning of the system, subject to inspection and certification by the Third-Party Inspection Agency, and acceptance by the DPA.
3	A payment of 10% of the total quoted rate (Part B) will be released upon successful completion & commissioning of the entire scope of work and receipt of all statutory approvals, subject to final inspection, certification by the Third-Party Inspection Agency, and taken over by the DPA.
Sr. No.	Payment stage For Part-C (CAMC)
1	Monthly payment will be released (subject to deductions as per tender conditions) on the submission of the bill in the prescribed format along with invoice, relevant document etc. After inspection & certification of the same by Third Party Inspection Agency & acceptance of work by DPA.

Signature & Seal of Contractor

Sd/-
Executive Engineer (E)
Deendayal Port Authority