Clarification and Amendment No – 01

"CONSTRUCTION OF 20 MWp (DC) SOLAR PHOTOVOLTAIC GRID CONNECTED POWER PLANT AT BAROPUKURIA, PARBATIPUR, DINAJPUR ON TURNKEY BASIS"

(Design, Engineering, Manufacturing, Supply, Installation, Testing & Commissioning and 2 (Two) Years Warranty Period)

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1.	Volume 2 of 2 (Part A) 1.14.3 Page no: 115	Geotechnical study	Site suitability studies (including flood risk studies, other limitation studies, etc.): The red line of the site area is missing, the site conditions (topography of the site area, surrounding river conditions, etc.) and hydro-meteorological data are not available for compilation.	**Attachment-1: Tender Document Word File** (This document is attached to facilitate the form submission) **Attachment-2: Topographical Survey** **Attachment-3: Soil Test Report**
2.	Vol 2 of 2 (Part-A): Employer's Requirements, 1.2.1; Page no 09 **Price Schedule of Plants and Services (e-PG 5A-3)**	The scope of supply, works and services shall cover, but not limited to the following: **Soil Test (6 nos)** Schedule 4: Civil Works **01 (b) Soil Test, Quantity: 6 nos**	As per Clause 18, the soil investigation scope includes 6 boreholes. However, for EPC-level geotechnical assessment, standard industry practice generally requires approximately 1 borehole per 2 - 3 acres. Considering the total project area, the estimated requirement appears to be approximately 24-30 boreholes. Kindly clarify the intended borehole quantity and detailed scope of investigation.	Vol 2 of 2 (Part-A): Employer's Requirements, Page no 09 1.2.1 The scope of supply, works and services shall cover, but not limited to the following: **Amended as,** **Soil Test (20 nos)** **Price Schedule of Plants and Services (e-PG 5A-3)** Schedule 4: Civil Works **Amended as,** **01 (b) Soil Test, Quantity: 20 nos**
3.	Volume 2 of 2 (Part A), Section-7: Page No: 183	Drawing	Schematic diagram of the grid access point: Need clarification on the content of this drawing? No information about access to the substation was found in the tender documents. It is necessary to provide relevant information about the proposed substation (relative position map to the photovoltaic field area, floor plan, electrical primary and electrical secondary system diagram).	Evacuation Point is NESCO 33 kV Switching Station, **Latitude: 25.550090, Longitude: 88.952152.** Single Line Diagram is given on Tender Document Volume 2 of 2 (Part A), **Section-7: Drawing**, Page No: 183. Technical Specification Details is given on Tender Document Volume 2 of 2 (Part A), **1.13.17 Power Evacuation,** Page No: 104.
4.	Volume 2 of 2 (Part A)	SCADA system	Preliminary documents such as temporary land use permits, felling permits, grid access permits, and crossing road/river permits:	Land is owned by BPDB, No Road/River crossing is in the scope of the project. **All costing of NLDC integration of the SCADA system is in the scope of the Tenderer.**

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			It is suggested to clarify whether the above-mentioned documents have been processed and whether the unprocessed documents are the responsibility of the owner or the contractor? [The tender documents stipulate that the cost of grid connection shall be borne by the contractor]	Please check 1.13.9 & 1.13.10 of Tender Document Volume 2 of 2 (Part A).
5.	Volume 2 of 2 (Part A), Section-7	Drawing	Preliminary layout of the substation: The absence of CAD drawings of the site red line, the investigation of the site topography, and the proposed location of the substation involved in substation site selection.	As per Tender Document Volume 2 of 2 (Part A), **Section-7: Drawing**
6.	Volume 2 of 2 (Part A) 1.14.3	Geotechnical study	Civil engineering documents (water management system, including calculations, drawings, etc.): There is a lack of hydro-meteorological data and the conditions for conducting calculations are not available	As per Tender Document Hydro-meteorological data can be collected from Bangladesh Water Development Board (BWDB).
7.	Volume 2 of 2 (Part A) 1.14.3	Geotechnical study	Civil engineering documents (water system drawings showing elevation, drainage and related elements): There is a lack of topographic mapping data for the site, and on-site elevation measurement is required to determine the elevation.	As a Turnkey Work, Power Plant Design (including water system drawing) is in the scope of the Tenderer. Topographical Survey is given in **Attachment-2**
8.	Volume 2 of 2 (Part A), Section-7	**Drawing**	Support structure drawings and calculation books: The project has not yet carried out geological exploration work, and it is impossible to determine the characteristics of the strata and the bearing capacity characteristic values, so it is impossible to carry out the calculation of the photovoltaic foundation form and support structure.	Attachment-2: Topographical Survey Attachment-3: Soil Test Report Moreover, you can check As per Tender Document Volume 2 of 2 (Part A), **Section-7: Drawing** for Conceptual PV module mounting structure. Detailed Design & Drawing will be submitted by the Tenderer after the contract doing detailed site survey, soil test as per Employers Requirement Section 6, Tender Document Volume 2 of 2 (Part A)
9.	Volume 2 of 2 (Part A) 1.3.2 Page: 16	Climate Data of the proposed Site	Wind load (What wind speed does the support structure need to be able to withstand): Please clarify the basis for wind resistance. This wind speed is at the top level for resisting extreme weather events, and the wind resistance requirements are extremely strict.	Solar PV module mounting structure will be designed for withstanding 200 km/h or 55.56 m/s wind speed for 3 second gust.
10.	Volume 2 of 2 (Part A)	Module Mounting Structure	Photovoltaic bracket tilt angle:	Azimuth: South facing, Tilt Angle: 23°.

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	1.6.7 Page: 22-23		The tender documents stipulate a fixed bracket with an inclination of 23°. Can the inclination Angle be adjusted according to the site conditions?	
11.	Volume 2 of 2 (Part A). 1.14.8 Page no 118	Drainage System	Design reports and drawings related to the flood control project during the pre-feasibility study, preliminary design and other preparatory work of this project: There is a lack of topographic mapping data for the site, and on-site elevation measurement is required to determine the elevation.	Please check 1.14.8 Drainage System, Page no 118, Tender Document Volume 2 of 2 (Part A). Total Length of the Drainage system will be 2449.8 meters. Topographical Survey is given in **Attachment-2**
12.	Volume 2 of 2 (Part A). 1.14.8 Page no 118	Drainage System	The flood control standards and specifications, hydrological design specifications, and design specifications for embankment and river course improvement projects adopted in Bangladesh.	No embankment and river course is in the scope of this project.
13.	Volume 2 of 2 (Part A).	Topographical Survey	1:1000 topographic map of the project area.	Topographical Survey is given in **Attachment-2**
14.			1 Tender Date sheet: Pls provide the excel file and word file which can saving the time	Attachment-1: Tender Document Word File
15.	Volume 1 of 2. ITT Clause 35.1 (d).	Tender Validity	ITT32.2: The tender valid is 150days, so the bid security shall cover validity of bids plus 28days?	Yes, As per ITT Clause 35.1 (d).
16.	Volume 1 of 2. TDS (ITT 18.4).	Subcontractor	3. ITT18.4: "The nominated subcontractor named shall execute the following specific components of the proposed works," can you share the nominated subcontractors?	As per TDS (ITT 18.4).
17.	Volume 2 of 2 (Part A). 1.3.1, Page-14	Site Overview Location of the Solar Power Plant	The specific address of the project is recommended to provide the coordinate point.	Tender Document Volume 2 of 2 (Part A), **1.3.1 Site Overview Location of the Solar Power Plant,** Page-14
18.	Volume 2 of 2 (Part A), 1.3.17, Page-104	Power Evacuation	Does this project include external line works? If so, please provide the length of the external lines.	Tender Document Volume 2 of 2 (Part A), **1.3.17 Power Evacuation, 1.3.18 Bay extension at 33 kV NESCO switching station,** Page-104, 113
19.	Volume 2 of 2 (Part A), 1.3.17, Page-104	Power Evacuation	Is land appropriation necessary for the power line from solar plant to interconnecting sub-station?	Not needed, Cable layout will be designed for minimum copper loss & cable routing through the BPDB owned area.
20.	Volume 2 of 2 (Part A)	Module Mounting Structure	The Tenderer is advised to submit his offer for fixed tracking system of module mounting structures along with guaranteed energy output	This project will be built with a fixed tilt (zero tracking) system PV module mounting structure. Guaranteed energy

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	1.6.7 Page: 22-23		from the solar system. The question is: In the BOQ list, the design is based on the fixed mounting racks. Should the price for this tracking rack be quoted separately for this item, or should it be included in the quotation and two quotations be provided?	output (MWh) will be given by the Tenderer for this fixed tilt (zero tracking) mounting structure.
21.	Volume 2 of 2 (Part A)		Moreover, for proper preparation of a competitive and technically compliant proposal, several important activities are required to be completed, including but not limited to: • Site visit and detailed site assessment, Soil investigation and topographical survey, • Collection of authorization documents from foreign manufacturers, • Technical coordination with overseas manufacturers and suppliers for PV Modules, Inverters, Power Transformers, and other major electrical equipment, • Collection and verification of technical documents, catalogues, certifications, and compliance documents from multiple manufacturers, • Proper review and analysis of design drawings, technical specifications, BOQ, and site conditions for accurate engineering and cost estimation, • Since a solar power plant project involves a large number of imported and specialized equipment, obtaining the required technical and commercial documents from international manufacturers is highly time-consuming.	Attachment-2: Topographical Survey Attachment-3: Soil Test Report. As a qualified EPC, Tenderer is bound to do all of these activities within the given Time frame.
22.	Volume 2 of 2 (Part A) 1.14.5.5 Land Development	Land Development	Will river dredged sand be used as the source of sand/fill material? This information is necessary for estimating land development cost.	Yes. as per Tender Document. Please check **1.14.5.5 Land Development,** Tender Document Volume 2 of 2 (Part A), Page-118
23.	Vol 2 of 2		The Performance Ratio (PR) requirements appear inconsistent across the tender document and may require clarification. In some sections (Vol. 2 PR is stated as 78%, while Clause 33 of Vol. 2 equation/formulation may require verification. Part B), the minimum guaranteed Part A specifies 81%. Additionally, the PR	Minimum requirement of PR is 78 %.

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24.	Volume 2 of 2 (Part A) 1.3.2 Page: 16	Climate Data of the proposed Site	The wind load design speed is mentioned inconsistently in the tender document as 55 m/s or 200 km/h (Clause 18), 60 m/s (Clause 129), and 80 m/s (Clause 78). Kindly confirm the governing design wind speed to be adopted for structural design and compliance purposes	Solar PV module mounting structure will be designed for withstanding 200 km/h or 55.56 m/s wind speed for 3 second gust.
25.	Volume 2 of 2 (Part A) 1.14.4 Page: 116	Topographic Works	Clause 718 states: "The instrument needed for this type of work is a GPS centimeter topographic accuracy and work with RTK (Real-Time Kinematic) including a Total Station and a Theodolite for digital topographic and leveling survey works. "In this regard, kindly clarify the intended survey methodology and whether simultaneous deployment of RTK GPS, Total Station, and Theodolite is mandatory for the scope of survey works.	Yes, mandatory. As per Tender Document.
26.	Volume 2 of 2 (Part A)	Technical Specification	For preparation of the PVsyst simulation and energy yield analysis, the PV module and inverter models are required to be defined in advance. Kindly confirm the tentative approved/preferred manufacturers or suppliers (e.g., Trina Solar, LONGI, Jinko Solar, Huawei, Sungrow, etc.) along with the relevant technical datasheets, if available.	Tenderer will offer the OEM that qualifies the requirements as per the Volume 2 of 2 Part A, Employers Requirement (1.13.1 Solar PV Module, 1.13.3 Grid Tied Inverter) & Specification Submission & Compliance Sheet (e-PG 5A-5) (Volume 2 of 2 Part B). Using that OEM's equipment Tenderer will give the PVsyst simulation and energy yield analysis.
27.	Volume 2 of 2 (Part A)	Site suitability study (including flood risk assessment, study on other restrictive conditions, etc.)	The red line of the site boundary, site conditions (such as site topography and landform, surrounding river conditions), as well as hydrometeorological data are missing, making it impossible to carry out the compilation.	Attachment-2: Topographical Survey Attachment-3: Soil Test Report.
28.	Volume 2 of 2 (Part A) Section-7: Drawing	General Layout of Power Station	Lack of CAD drawing of site boundary red line	As per Tender Document. Tender Document Volume 2 of 2 (Part A), **1.3.1 Site Overview Location of the Solar Power Plant,** Page-14 & Volume 2 of 2 (Part A), **Section-7: Drawing, Page 184.**
29.	Volume 2 of 2 (Part A) Section-7: Drawing	Schematic Diagram of Power Grid Connection Point	Please clarify the content of this drawing? The bidding documents do not contain relevant information regarding the connection to the substation. Please provide relevant documents of the proposed substation for connection (including a relative location diagram of the photovoltaic farm and the substation, a layout plan, primary electrical system diagram, and secondary electrical system diagram).	Volume 2 of 2 (Part A), **Section-7: Drawing, Page 183.**

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30.	Volume 2 of 2 (Part A)	Support structure drawings and calculation report	Geotechnical investigation nas not been carried out for the project at present, so the stratum characteristics and characteristic bearing capacity cannot be confirmed, and the design of photovoltaic foundation type as well as the calculation of support structure cannot be performed.	Attachment-3: Soil Test Report.
31.	Volume 2 of 2 Part A, Employers Requirement 1.13	Selection of PV modules, inverters and transformers	Are there any local procurement proportion requirements for raw materials, equipment and services? In addition, are there any intended manufacturers? If yes, please provide relevant information.	Tenderer will offer the OEM as per the Volume 2 of 2 Part A, Employers Requirement 1.13 & Specification Submission & Compliance Sheet (e-PG 5A-5) (Volume 2 of 2 Part B).
32.	PCC 65.1 & 65.2 (GCC 65.1 & 65.2)	Customs Duty & VAT Payment Process	Please clarify whether customs duty and VAT for the permanent plant shall be paid directly by BPDB to the Customs authority, or if the Contractor shall make payment first and be reimbursed within a specified period.	As per Tender Document PCC 65.1 & 65.2 (GCC 65.1 & 65.2)
33.	PCC 65.1 & 65.2 (GCC 65.1 & 65.2)	Demurrage Storage Charges	Please also confirm whether customs duty and VAT for replacement parts provided during the warranty period shall be borne by BPDB.	As per Tender Document PCC 65.1 & 65.2 (GCC 65.1 & 65.2) **No, BPDB will not bear these costs.** As stated in the final paragraph of the Clause: *"BPDB will not provide IMPORT DUTY, VAT, TAXES, LEVIES AND OTHER TAXES for import of Replacement materials of the project and the items without mentioning the name of materials in Price Schedule No.-1"* Therefore, all customs duties, VAT, taxes, and levies for replacement parts provided during the warranty/defect liability period must be **entirely borne by the Contractor**. Furthermore, any items imported that are not specifically named in *Price Schedule No.-1* will also be the sole tax responsibility of the Contractor.
34.	PCC Clause No-GCC 39.4	Warehouse for Storage	Please confirm who will be responsible for any demurrage, detention or storage charges arising from delayed tax payments or other reasons caused by the Procuring Entity/BPDB.	As per **PCC Clause No- GCC 39.4** which is- All payment for clearance charge, storage charge, etc. (excluding CD and AIT & VAT on CIP portion) which are imposed by the relevant agencies of the Government of Bangladesh, relating to the

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				clearance of equipment and materials that will be incorporated in the Plant shall be made by the Contractor., The Contractor is generally responsible for handling customs clearance and paying all clearance and storage charges.
35.	TDS (ITT 7.1), PCC (GCC 31.3)	Letter of Credit Arrangement	Please confirm whether there are any warehouses available for the project site, does the contractor need to rent a warehouse to store the project products and materials? Please clarify.	As per Tender Document TDS (ITT 7.1), PCC (GCC 31.3)
36.	PCC (GCC 61.5)	Delayed Payment Consequences	Please specify which bank will issue the Letter of Credit for payment to the contractor. and please confirm whether can BPDB/Board will issue an irrevocable letter of credit to replace the current letter of credit? Please clarify.	Answer-1: Any Scheduled Bank of Bangladesh. Answer-2: As per Tender Document PCC (GCC 61.5) & Appendix 1: Terms & Procedure of Payment.
37.	PCC 65.1 & 65.2 (GCC 65.1 & 65.2)	Tax and Duty Documentation	Could you please kindly share the official documentation detailing the applicable customs duties and other local taxes for project-related products?	You can find the Duty Calculator in the following site. https://bangladeshcustoms.gov.bd/trade_info/duty_calculator
38.	TDS (ITT 27.4)	Payment Currency	For international bidders, is the overall bid price quoted in US dollars? Please kindly confirm whether all payments can be made through US Dollars, including the local portion?	Yes. As per TDS (ITT 27.4).
39.	Price Schedule-1	Schedule No. 1 Plant Supplied from Abroad	Refer to Schedule No. 1 Plant Supplied from Abroad, Please confirm whether the unit price, CIP should quote include customs duties, VAT and other taxes etc.	As per Tender Document (Price Schedule-1), the price should be quoted **excluding** customs duties, VAT and other taxes etc. Please check PCC 65.1 & 65.2 (GCC 65.1 & 65.2) For Details.
40.	Volume 2 of 2 (Part A) Section-7: Drawing	Site Information	Site Information: Kindly provide latest architectural drawings, structural drawings, and site layout plans. Please confirm available installation area and rooftop/parking dimensions. Is a physical site survey mandatory before bidding?	1. Please check Tender Document TDS (ITT 7.1), 2. Tender Document Volume 2 of 2 (Part A), **Section-7: Drawing**
41.	Volume 2 of 2 (Part A), **Section-7: Drawing**	Electrical System Details	Electrical System Details: Please share existing Single Line Diagram (SLD) of the facility. Confirm existing transformer capacity, LT/HT panel ratings, and busbar capacities. What is the available voltage level (400V / 11kV /33kV)?	Tender Document Volume 2 of 2 (Part A), **Section-7: Drawing** 33 kV NESCO Switching Station Single Line Diagram

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42.	Volume 2 of 2 (Part A): 1.13.10 SCADA System	SCADA & Monitoring	SCADA & Monitoring: Please confirm required monitoring platform and communication protocol. Is remote monitoring through SCADA mandatory? Are weather stations and energy meters required?	Yes, Remote Monitoring is mandatory. Yes, Weather station and energy meter is required, Please check As per Tender Document Volume 2 of 2 (Part A): 1.13.10 SCADA System,
43.	Volume 2 of 2 (Part A): Test Requirements and Acceptance Criteria, Page-148	Testing & Commissioning	Testing & Commissioning: Please confirm required testing procedures and acceptance criteria. Is third-party inspection required?	As per Tender Document Volume 2 of 2 (Part A): Test Requirements and Acceptance Criteria, Page-148; Pre-delivery Inspection Procedure of the equipment's are written in GCC 41.3- Test & Inspection. Volume 1 of 2. Section 1.13: Technical Specifications of Tender Document Volume 2 of 2 (Part A).
44.	Volume 2 of 2 (Part A), Section-7: Drawing	Load Profile & Consumption Data	Load Profile & Consumption Data: Kindly provide at least 12 months electricity bills/load data. Please confirm daytime and nighttime load profile. Is export to grid allowed or zero-export operation required?	Tender Document Volume 2 of 2 (Part A), **Section-7: Drawing** 33 kV NESCO Switching Station Single Line Diagram
45.	Volume 2 of 2 Part A, Employers Requirement	Solar PV System Requirements	Solar PV System Requirements: Are specific module/inverter brands approved or equivalent brands acceptable? Confirm required DC/AC ratio criteria.	1.Tenderer will offer the OEM that qualifies the requirements as per the Volume 2 of 2 Part A, Employers Requirement (1.13.1 Solar PV Module, 1.13.3 Grid Tied Inverter) & Specification Submission & Compliance Sheet (e-PG 5A-5) (Volume 2 of 2 Part B). 2. DC:AC ratio = 1.2
46.	Volume 2 of 2 (Part A), **1.13.17 Power Evacuation,** Page No: 104	Centralized or Distributed Connection	For the proposed 20 MW Solar PV System, kindly clarify whether the plant shall have a single 33 kV Point of Interconnection (POI) with centralized power evacuation, or whether the system is intended to be connected through multiple distributed 33 kV interconnection/termination points.	The proposed 20 MW Solar PV System shall have a centralized power evacuation arrangement through a single 33 kV Point of Interconnection (POI) at the existing NESCO 33 kV switching station.
47.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	SCADA System: The monitored systems shall include monitor strings,	Please specify the communication interface protocols for strings, inverters, and weather stations (Modbus TCP/RTU? Sun Spec?)	As per Design Approval.

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		grid tied inverters, installed weather station and shall comply with the Procuring Entity's requirements.		
48.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	The Contractor shall be fully responsible for the design, supply, installation, testing, commissioning, configuration, integration, and modification of all hardware and software required to provide SCADA/EMS, tele-control, and tele-metering facilities for full integration of the Power Station/Substation with NLDC. This shall include all necessary extensions and modifications to existing station automation systems and to NLDC Main and Backup Master Stations.	The "all hardware and software" range is too broad. Specific software and hardware must be provided.	As per Design Approval.
49.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	The Contractor shall supply and install all cabling, interfaces……. ….cost to the Procuring Entity.	The "any works, equipment, additional hardware and software" range is too broad. It is necessary to clarify.	As per Design Approval.
50.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	IEC60870-5-101/IEC60870-5-104-Telecontrol protocols for serial and TCP/IP-based SCADA communication with control centers(NLDC).	Please confirm whether NLDC uses IEC 60870-5-104 (TCP/IP) or -101 (serial port)? Is it acceptable to transfer through an OPC gateway?	The Contractor shall comply with IEC 60870-5-104 protocol for communication with NLDC. IEC 60870-5-101 may be used internally where applicable. OPC gateway or protocol conversion gateway may be used if required for integration, subject to approval by BPDB and compatibility with NLDC requirements.

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51.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	IEC 60870-5-101 /IEC60870-5-104 Tele-control protocols for serial and TCP/IP-based SCADA communication with control centers (NLDC). ….. …. center data exchange (where IEC 61724-1/2/3 PV system performance monitoring and data quality (where applicable)	Please clarify whether the aforementioned IEC standards are requirements that must be followed in the design process or whether a third-party certification report is needed?	The listed IEC/IEEE standards in the Tender Document are mandatory design, engineering, manufacturing, communication, cybersecurity, interoperability, testing, and performance compliance standards for the PCMS and SCADA system. Third-party certification reports are not mandatory unless specifically required by NLDC, PGB PLC.
52.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	7 Hundreds of attribute/variable/tag	Please provide a system network architecture diagram, clearly stating: 1) The number of SCADA clients; 2) The detailed allocation of 'hundreds of attribute/variable/tag' including DI/DO/AI/AO/communication attribute/variable/tag." 3) The number and location of servers. If the number of servers and the network architecture diagram cannot be provided, we will design the network architecture during the design phase and give suggestions on the number of servers.	1 & 3) The Contractor shall propose the detailed SCADA/PCMS architecture, server configuration, network topology, tag allocation, redundancy concept, and database structure during the detailed engineering stage for Employer's approval, based on the approved SLD, final equipment configuration, and NLDC signal requirements. 2) The exact quantity of tags/points/signals including DI, DO, AI, AO, alarms, events, SOE, communication status, inverter parameters, weather station data, energy meters, protection relays, and auxiliary systems shall be finalized during detailed engineering and approved signal list preparation. The Contractor shall include sufficient spare capacity for future expansion.
53.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Intelligent Electronic Devices (IEDs) Protection relays Energy meters, sensors, and transducers need to be verified. Brands, protocols, and versions.	Energy meters, sensors, and transducers need to be verified. Brands, protocols, and versions.	As per Design Approval.

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		Programmable Logic Controllers(PLCs) Remote Terminal Units (RTUs) Energy meters, sensors, and transducers		
54.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	voltage current and frequent, active power,reactive power,apparent power,power factor and energy	Are all these analog quantities complete? Have they all been included in the IO attribute/variable/tag?	All electrical, operational, alarm, status, protection, event, metering, and performance parameters necessary for safe, reliable, and compliant operation of the plant shall be included within the Contractor's scope.
55.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Status of circuit breakers, isolators, switches, transformers, inverters, and auxiliary systems	Are all these digital quantities complete? Have they all been included in the IO attribute/variable/tag?	All electrical, operational, alarm, status, protection, event, metering, and performance parameters necessary for safe, reliable, and compliant operation of the plant shall be included within the Contractor's scope.
56.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Single Line Diagrams(SLD) Process and equipment mimic diagrams Real-time values,status indications,and color-coded alarms	Are all these digital quantities complete? Have they all been included in the IO attribute/variable/tag? Graph complexity: Does the single-line diagram require automatic topological coloring (automatically deriving the full network color based on the charged state)? This requires additional logic and is not a basic function. Source of drawings: Is there an option to import CAD base drawings/P&ID original drawings, or will we have to redraw them ourselves? Color standards: Does the color code follow the owner's specified standard (such as IEC 60617, enterprise norms)?	The SCADA graphical interfaces including SLDs, mimic diagrams, alarm pages, reports, trends, dashboards, and visualization logic shall be developed by the Contractor during detailed engineering and approved by the Employer/Employer's Engineer. CAD drawings, SLDs, and available engineering documents shall be provided by the Employer where available. The Contractor shall prepare, modify, update, and finalize all SCADA/PCMS graphical displays and engineering drawings as required. Protection functions including overcurrent, differential, distance, earth fault, transformer protection, breaker failure, and interlocking logic shall remain independent of SCADA

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				communication systems. Failure of SCADA communication shall not affect protection trip functionality. Operational interlocks may be implemented through PLC/IED hard logic, SCADA supervisory logic, or both, depending on the system design and operational philosophy approved by the Employer. Automatic topology coloring, advanced visualization logic, alarm hierarchy, dynamic display functions, and intelligent visualization features may be implemented by the Contractor where required for reliable operation and NLDC compliance.
57.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	2.1 The SCADA system shall enable remote supervisory control of plant equipment from the control room and/or remote control center, including: Opening and closing of circuit breakers and isolators Start/stop and control of plant equipment and auxiliaries Control of active and reactive power with in defined operating limits 2.2All control commands shall be subject to: User access authorization Command validation and confirmation Interlocking and safety logic to prevent mal-operation	Can be achieved	-

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58.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	3.1The SCADA system shall provide a comprehensive alarm management system to detect, prioritize, and display abnormal operating conditions faults,and limit violations. 3.2 Alarms shall be: Time-stamped with milli second resolution Categorized by priority acknowledged, logged, and archived 3.3The system shall support Sequence of Events (SOE recording for post-disturbance analysis and fault investigation.	Millisecond-level time reference source: Does "millisecond resolution" refer to the time recorded by the SCADA system or the SOE time of the underlying devices (IED/PLC)? If it is the former, it is necessary to confirm whether second-level resolution is accepted; if it is the latter, it is necessary to clarify the device's time synchronization scheme. System-wide time synchronization: Do all IEDs, PLCs, RTUs, and SCADA servers adopt unified GPS/Beidou time synchronization? What are the time synchronization accuracy requirements? (Usually, SOE requires ±1ms, and IRIG-B or PTP protocol is needed) SOE record storage: How are the storage requirements for SOE data volume (extremely large millisecond-level events) and capacity? Is a separate SOE server configured?	Realtime Data Acquisition if the Inverter allows. GPS-based synchronized time synchronization system shall be provided for all SCADA, RTU, IED, PLC, Gateway, SOE, and protection devices. Millisecond-resolution SOE recording shall be supported where applicable.
59.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	1TheSCADA system shall include ahistorical database for long-term storage of operational data events, and alarms. 4.2The system shall provide trending,analysis,and data retrieval functions for: Performance assessment Fault analysis and root cause investigation Equipment condition monitoring	Storage capacity and retention period - How many years for "long-term storage"? Data sampling frequency? These factors directly affect server configuration and storage capacity calculation. The disk space capacity of the hardware involved in the configuration.	Historical database storage duration, sampling intervals, reporting requirements, redundancy level, server sizing, RAID configuration, and archive capacity shall be proposed by the Contractor during detailed engineering considering long-term operation requirements and future expansion.
60.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	information display and fault indication rip	Can be achieved	

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61.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	The SCADA system shall implement operational interlocks and permissive logic as required for safe plant operation. Protective functions shall remain independent and shall not become promised by the SCADA system.	Where is the interlock implemented? Is the operation interlock handled by the SCADA software layer, or by the PLC/IED hard logic or by both? Scope of protection independence "Protection functions" specifically refer to what? Over current, instantaneous trip, differential? These should not normally go through the SCADA channel. Fallback in the event of SCADA failure When the SCADA communication is interrupted, are the interlocks between local operation and protection still effective? Please clarify whether the protection trip circuit is completely independent of the SCADA communication network?	SCADA/PCMS servers, operator stations, historian servers, gateways, firewalls, communication equipment, engineering workstations, and storage systems shall be industrial-grade and suitable for continuous utility-scale power plant operation.
62.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	6.1The SCADA system shall measure,calculate,and record: Gross generation, net export/import energy, auxiliary consumption Plant availability and operating hours 6.2The system shall compute key performance indicators (KPIs) including: Plant efficiency and losses Capacity factor and availability Performance Ratio(PR),where applicable	The SCADA software can only achieve basic management. The EMS part requires the implementation of energy management software.	As per Detailed Design Approval

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63.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	7.1The SCADA system shall be capable of exchanging real-time operational data with the National/Regional Load Dispatch Center (NLDC/RLDC) through standard communication protocols. 7.2The system shall support: Active and reactive power control Frequency and voltage regulation Ramp rate control and grid code compliance	AGC/AVC/Ramp Rate control requires closed-loop regulation algorithms, which should be realized by EMS or the unit DCS. SCADA only serves as an instruction transmission channel. Please clarify whether the above control functions are within the scope of this SCADA contract or are handled by other systems? "	AGC, AVC, reactive power control, ramp-rate control, voltage regulation, and grid code compliance functions shall be included within the SCADA/EMS/Plant Controller scope as required for NLDC and Grid Code compliance.
64.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	8.1The SCADA system shall automatically generate standard and customizable reports including: Daily, monthly and annual generation reports Alarm and event logs Availability and outage reports 8.2Reports shall be exportable in standard formats (e.g.,PDF,CSV,Excel).	AVEVA report implementation	As per Tender Document.
65.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	9.1 The SCADA system shall provide role-based access control with multi-level user privileges. 9.2The system shall include: User authentication and password management	Network isolation is not a function of SCADA software; it is a function of the network architecture.	As per Tender Document.

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		Audit trails for operator actions Secure communication and network segregation		
66.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	10.1 The SCADA system shall support secure remote monitoring and diagnostics for operation and maintenance purposes.	Security is not inherent in the software itself. Remote range "Remote" refers to the internal local area network within the factory (such as from the control room to the local station), or through the wide area network via the internet (such as from the headquarters/manufacturer remotely)? The security requirements for these two scenarios are quite different. Access method Taking a VPN dedicated line, or using the public internet with encryption? Or dial-up/4G? Operational authority Are remote personnel only responsible for monitoring and diagnosis, or can they also issue control commands? Generally, critical control is prohibited for remote access. Network security regulations Is the country where the project is located (Southeast Asia) prohibiting or restricting cross-border remote access to the power monitoring system?	The Contractor shall provide complete cybersecurity architecture including firewalls, secure remote access, VPN/encrypted communication, user authentication, audit trails, antivirus protection, and network segregation in compliance with IEC 62443 and IEC 62351.
67.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	10.2 The system shall facilitate predictive and preventive maintenance to minimize plant downtime and optimize life cycle performance.	SCADA can achieve basic functions such as data collection, trend display, and timed reminders. Predictive analysis (using AI algorithms) requires integration with AVEVA APM or a third-party platform. Please specify the specific depth requirements for 'predictive maintenance'.	Prediction based on Weather Report, Weather Station Data, Sensors output etc. AVEVA APM is okay in this case if can be integrated with the existing system.
68.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	11.Reliability and Availability 11.1 The SCADA system architecture shall be modular, scalable, and redundant,ensuring high	Redundancy scope "Any single component" refers to full redundancy of servers, networks, and communications, or partial redundancy? Full redundancy is very costly. Switching time How long does the fault switching require? Seconds?	The system must be integrated with the existing system.

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		availability and fault tolerance. 11.2 Failure of any single component shall not result in total system failure.	Milliseconds? Affects the architecture design. Does the current system's compatibility and redundant architecture match that of the existing old system? The old system might not support dual channels	
69.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	To be confirmed by the employer. 2. System Security The SCADA shall be designed in accordance to IEC61850 or equivalent Standard. For security reason shall log-in and log-out events shall be logged in the event list. All user changes and modifications to the system as well as parameter and program modifications shall be logged with the exact time and operators assignment in the event list too. It shall be possible to print this information. 3.Performance and Reliability All equipment shall be of high quality and reliability. The overall system availability of the SCADA shall be 99% or higher. Loss of monitoring data shall be avoided by means of redundant hard disk drives or RAIDs and an appropriate automatically operating back up technology for removable media. All equipment shall be protected against cyber-attacks and shall be certified by CE signs for operational safety. The SCADA-System shall have a minimum life time of 25years…..	"Please clarify whether the historical database will use SQL Server Standard (requiring an authorization) or SQL Server Express (free, with a 10GB limit). If the data volume is large or long-term storage is needed, it is recommended to use the Standard version. Is the authorization fee listed separately?" Service life: 25 years. The software cannot guarantee support for 25 years. Free upgrades: Major version upgrades and hardware replacements are not free. Spares: 25 years. Does this refer to hardware?	As per Detailed Design Approval and Standard Practice.

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70.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	All stations shall be connected to the SCADA system and shall be made available in the SCADA to download collected weather data.The meteorological measurement station is connected to SCADA system via 485 cable.	Please confirm the communication protocol of the meteorological station (Modbus RTU? Special protocol?) and the register address table. If it is a private protocol, a protocol conversion gateway is required."	Modbus RTU. You Can Take the Kipp & Zonen /Rain wise or equivalent weather stations built in protocol. You Can Take the Kipp & Zonen /Rain wise or equivalent weather stations built in protocol for gateway input.
71.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	To be confirmed by the Employer	Please clarify the requirements for Web client access: 1) The number of concurrent accesses; 2) The access scope (local area network/internet); 3) The functional permissions (read-only/control)."	As per Detailed Design Approval.
72.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Please have the customer confirm the specifications of the server.	"Please provide the server configuration list in the tender documents. We will calculate and provide suggestions on the recommended configuration and the number of servers based on the attribute/variable/tag value scale, redundancy requirements, and the retention period of historical data."	As per Detailed Design Approval.
73.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Are the SCADA screens, alarms, and reports required to be in the local language?	Please confirm.	No, In English.
74.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	For systems that need to be integrated into the SCADA software, provide the system name, architecture form, functions, and version.	Please confirm.	Yes.
75.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	The specific scope of "Necessary integration"	Is the integration with the existing SAS, SCADA, and NLDC a data layer connection, or does it involve physical layer construction? Or is	The Contractor shall ensure compatibility and integration with existing NLDC SCADA/EMS infrastructure, GE e-terra platform requirements, PGCB communication

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			it a matter of embedding the interface? Please provide the brand, version, and protocol of the existing systems.	standards, and all applicable Bangladesh Grid Code requirements.
76.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Responsibility division of PCMS	Is PCMS integrated with SCADA? Brand, communication protocol, architecture	
77.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Existing SCADA system information	Please provide the existing SCADA brands, versions, system architecture diagrams, IP planning, historical data compatibility requirements.	
78.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	NLDC interface specification	Please provide the communication protocol standards (IEC 104/61850/DNP3), protocol versions, port numbers, and redundancy link requirements with the two upper-level control centers.	
79.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	The roles of the equipment need to be clearly defined.	Hardware configuration list (i7/16GB/RAID5/dual network ports) for SCADA servers, operator stations, or historical archive servers? Different roles configuration, there are significant differences	For SCADA servers you have to give the latest version of intel core i7. For operator stations, or historical archive servers you can use the 1 step previous version of core i7.
80.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Industrial grade vs Commercial grade	Are the SCADA devices installed in the air conditioning control room? If they need to be placed in the high-voltage room of the substation or outdoors, please specify the IP level, wide temperature range (-40°C to +70°C), and EMC certification standards (IEC 61850-3 / IEEE 1613).	Yes. Air conditioning control Room.
81.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	RAID 5 application and specifications	Is RAID5 used for redundant system disks or for archiving historical data? What is the total capacity of the hard drives, the type (SSD/HDD), the hardware RAID card or the software RAID?	As per Detailed Design Approval.

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82.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Document language and format	Is the document only in English, or is a local language version required? Is a DITA/XML structured document required, or is Word/PDF sufficient?	English.
83.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Depth of operation manual	Is it for the operation duty personnel (step-by-step operation card) or the maintenance engineers (technical reference manual)?	Both for Operation and Maintenance Personnel.
84.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Security communication implementation layer	"Secure communication" refers to encryption at the communication layer (such as IPSec/SSL VPN) or at the application layer (such as IEC 62351)?	The Contractor shall provide complete cybersecurity architecture including firewalls, secure remote access, VPN/encrypted communication, user authentication, audit trails, antivirus protection, and network segregation in compliance with IEC 62443 and IEC 62351.
85.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**	Dual dispatch center relationship	Are the two upper-level control centers operating simultaneously and in parallel, or is there a primary and backup system with failover functionality? Are the data attribute/variable/tag tables the same? How are the remote control permissions divided?	A primary and backup system with failover functionality.
86.	Volume 2 of 2 (Part A), **1.13.10 SCADA System**		What are the number of attribute/variable/tag in the real-time historical database, and which attribute/variable/tag need to be stored in the real-time historical database?	Any hardware, software, engineering, integration work, protocol conversion, database modification, communication equipment, licenses, interfaces, testing, tuning, modelling, or services necessary for complete, reliable, redundant, and compliant SCADA/PCMS and NLDC integration shall be deemed included within the Contractor's scope without additional cost to the Employer.
87.			How many attribute/variable/tag in the reports need to be included?	As per Tender Document & Detailed Approved Design.
88.	Volume 1 of 2 TDS (ITT Clause 13.1 (b))	Qualification Criteria [ITT 13.1 (b)] **Existing Clause:** (i) The Tenderer has successfully completed, as an EPC Contractor, at least	**Proposed Amendment:** (ii) The Tenderer has successfully completed, as an EPC Contractor, at least one (1) contract of similar nature and complexity of proposed works within the last ten (10) years prior to the Tender submission deadline. The Contract shall have been successful commercial operation for a minimum period of two (2)	As per Tender Document

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		one (1) contract of similar nature and complexity of proposed works within the last ten (10) years prior to the Tender submission deadline. The Contract shall have been successful commercial operation for a minimum period of two (2) years. Similar Nature means: For the purpose of this requirement, "Similar Nature" shall mean the design, supply, installation, testing and commissioning of a Ground-mounted Grid connected Solar Photovoltaic Power Plant with a minimum capacity of ....MW(DC)/....MW AC. (ii).....The letter shall contain at least the information of the i) Exact location of the Solar Power System ii) Capacity of the PV Plant iii) each PV module capacity & model iv) each inverter capacity & model.....	years. Similar Nature means: For the purpose of this requirement, "Similar Nature" shall mean the design, supply, installation, testing and commissioning of a Conventional/Fossil fuel Power Plant/Ground-mounted Grid connected Solar Photovoltaic Power Plant with a minimum capacity of MW (DC)/.....MW AC. (ii).....The letter shall contain at least the information of the i) Exact location of the Conventional/Fossil fuel Power Plant or Solar Power System ii) Capacity of the Conventional/Fossil fuel Power Plant or PV Plant iii) each Engine or PV module capacity & model iv) each Alternator or inverter capacity & model.....	