एन एच पी सी लिमिटेड
(भारत सरकार का एक नवरत्न उद्यम)
NHPC Limited
(A Government of India Navratna Enterprise)

CIN: L40101HR1975GOI032564

Regd. Office: NHPC Office Complex, Sector-33, Faridabad-121003(Haryana)

Dated: 11-07-2026

Corrigendum -2

Name of the Work: - " Electrical Infrastructure Works for evacuation of Power generated from 1200 MW Solar Power park in District Jalaun, Uttar Pradesh" (03 Nos. Pooling Substation (33/400 KV)."

Tender ID.: 2026_NHPC_913540_1

The amendment in the subject cited tender document is as per attached Annexure-I to this Corrigendum.

All other terms & conditions of the tender document shall remain unchanged.

11/7/26

General Manager
Contract (E&M)-II
NHPC Ltd.

Annexure-I

Amendment

In reference to the **Tender ID: 2026_NHPC_913540_1** for **""Electrical Infrastructure Work for evacuation of Power generated from 1200 MW Solar Power park in District Jalaun Uttar Pradesh" (03 Nos. Pooling Substation (33/400 KV)" t**he following amendments ar hereby authorized to be incorporated in the tender document:

Sl. No.	Clause No.	Bid Condition	Amendment
1.	NIT	**1.2 CRITICAL DATES OF TENDER:** (i) Document Download End Date & Time: 13/07/2026, 17:30 Hrs (IST) (ii) Online Bid Submission End Date & Time: 13/07/2026, 17:30 Hrs (IST) (iii) Last date of submission of Tender fee, EMD (Bid Security) and other offline supporting document at office of "General Manager, Contract (E&M)-II, 2nd Floor, Jyoti Sadan, NHPC Office Complex, Sector-33, Faridabad-121003 (Haryana)': 14/07/2026, 17:30 Hrs (IST) Bid Opening Date & Time (Technical Bid): 15/07/2026, 15:00 Hrs (IST)	**1.2 CRITICAL DATES OF TENDER:** **The bidding dates are extended as hereunder:** (i) Document Download End Date & Time: **28/07/2026 17:30 Hrs (IST)** (ii) Online Bid Submission End Date & Time: **28/07/2026, 17:30 Hrs (IST)** (iii) Last date of submission of Tender fee, EMD (Bid Security) and other offline supporting document at office of "General Manager, Contract (E&M)-II, 2nd Floor, Jyoti Sadan, NHPC Office Complex, Sector-33, Faridabad-121003 (Haryana)': **30/07/2026, 13:00 Hrs (IST)** Bid Opening Date & Time (Technical Bid): **30/07/2026, 17:30 Hrs (IST)**
2	Volume-5 Form & Procedures and SCC Volume II B Clause 9.0	SCC Clause 9.0 ESCROW MECHANISM	**Inserted Format for Tripartite Agreement is incorporated in Tender Document as Form 19 (Format Attached)**
3	SCC Volume II B Clause 34 Quantity Variation	The contractor shall not be entitled to claim deviation in quantity up to ±5% of the quantity specified in BOQ for Transmission Line. The	**Deleted** ~~The contractor shall not be entitled to claim deviation in quantity up to ±5% of the quantity~~

		payment of deviated quantity beyond ±5% from the BOQ for Transmission Line shall be paid/recovered on pro-rata basis by the Employer on prudence check, if any..	~~specified in BOQ for Transmission Line. The payment of deviated quantity beyond ±5% from the BOQ for Transmission Line shall be paid/recovered on pro-rata basis by the Employer on prudence check, if any..~~
4	SCC Volume II B Clause 35 Price Variation	The Price Variation shall be calculated from the date of placement of order (LOA) or 4 months after published date of opening (including extension, in any) of Techno-Commercial bid of tender whichever is earlier. The Price Variation shall be calculated as per IEEMA PV formula and monthly indices published by IEEMA.....	~~The Price Variation shall be calculated from the date of placement of order (LOA) or 4 months after published date of opening (including extension, in any) of Techno-Commercial bid of tender whichever is earlier.~~ The Price Variation shall be calculated as per IEEMA PV formula and monthly indices published by IEEMA.....
5	Volume-5 Form & Procedures Price Schedule	**Price Schedule 1.** SCHEDULE OF QUANTITIES AND PRICES (BILL OF QUANTITIES)- Construction of 400kV Pooling Sub-stations **Details of Quantities for PART-A.1** 400 KV GIS Madhogarh Pooling Substation. **Details of Quantities for PART-B.1** Orai Pooling Substation **Details of Quantities for PART-C.1** Pathrahi Pooling Substation	Revised Price Schedules and Details of Quantity attached to this corrigendum
6	Volume-5. Form & Procedures 3. Form of Contract Agreement (Appendix 1)	**Appendix 1 (Terms and Procedures of Payment)**	Revised **Appendix 1 (Terms and Procedures of Payment)** attached to this corrigendum
7	Volume-5. Form & Procedures 8. Form of Taking Over Certificate	Pursuant to Clause 9 (Taking Over Certificate) of the Special Conditions of the Contract entered into between yourselves and the Employer dated *[date]*, relating to the *[brief description of the facilities]*	Pursuant to Clause 8 (Taking Over Certificate) of the General Conditions of the Contract entered into between yourselves and the Employer dated *[date]*, relating to the *[brief description of the facilities]*
8	Volume-5. Form & Procedures	ITB Clause 2.2.7 and Form-16 of Forms and Procedures, **PBG**	**The amended PBG format Form- 16 is hereby incorporated in Tender Document (Form -16 Attached)**

9	**General Technical Specifications Tranche-1: Pooling Substations**	**Project Introduction** The comprehensive **Power Evacuation Package (Tranche-1: Pooling Substations**) is defined to include the full scope of engineering, procurement, and construction for all necessarysubstations and associated transmission infrastructure. This package is functionally segregated into two principal components: **Tranche-1: Pooling Substations** - Development of all three pooling substations (Pathrahi, Madhogarh, and Orai) and a GIS bay extension at PGCIL substation. Pathrahi will evacuate the 300MW to Madhogarh substation. Critically, the Madhogarh and Orai Pooling Substations are specifically engineered with a capacity to handle a maximum flow of 1200 MW. In line with the project execution methodology, M/s BSUL mandates the rapid commissioning of the solar park infrastructure. This project requires aggressive schedule and necessitates a parallel execution of works for all pooling substations and interconnecting transmission lines to ensure timely integration of the 1200 MW into the grid. ***Note:*** *In the tender drawings and all related documents, the scope shall be designated as Phase- 1 and Phase-2 in accordance with the project execution philosophy. Phase-1 shall include the Madhogarh Pooling Substation and the transmission line connecting the Madhogarh Pooling Substation to the Grid Substation. Phase-2 shall include the Orai Pooling Substation, Pathrahi Pooling Substation, the transmission line connecting Pathrahi and Madhogarh, and the transmission line connecting Orai to the LILO point on the Madhogarh–Grid Substation transmission line. However, both Phase-1 and Phase-2 shall commence simultaneously on the same timeline, and all activities under both phases shall be*	**Project Introduction** The comprehensive **Power Evacuation Package (Tranche-1: Pooling Substations**) is defined to include the full scope of engineering, procurement, and construction for all necessary substations ~~**and associated transmission infrastructure.**~~ This package is functionally segregated into two principal components: **Tranche-1: Pooling Substations** - Development of all three pooling substations (Pathrahi, Madhogarh, and Orai) and a GIS bay extension at PGCIL substation. Pathrahi will evacuate the 300MW to Madhogarh substation. Critically, the Madhogarh and Orai Pooling Substations are specifically engineered with a capacity to handle a maximum flow of 1200 MW. In line with the project execution methodology, M/s BSUL mandates the rapid commissioning of the solar park infrastructure. This project requires aggressive schedule and necessitates a parallel execution of works for all pooling substations and interconnecting transmission lines to ensure timely integration of the 1200 MW into the grid. ~~***Note: In the tender drawings and all related documents, the scope shall be designated as Phase- 1 and Phase-2 in accordance with the project execution philosophy. Phase-1 shall include the Madhogarh Pooling Substation and the transmission line connecting the Madhogarh Pooling Substation to the Grid Substation. Phase-2 shall include the Orai Pooling Substation, Pathrahi Pooling Substation, the transmission line connecting Pathrahi and***~~

		executed in parallel to ensure the entire project is commissioned within the stipulated duration of 18 months.	~~***Madhogarh, and the transmission line connecting Orai to the LILO point on the Madhogarh-Grid Substation transmission line. However, both Phase-1 and Phase-2 shall commence simultaneously on the same timeline, and all activities under both phases shall be executed in parallel to ensure the entire project is commissioned within the stipulated duration of 18 months.***~~
10	**Annexure B - Bill of Quantity** Part-1: 400 kV GIS Madhogarh Pooling Substation	39) Operation and Maintenance for period of three (03) years of an entire Pooling substation including all necessary works and supply as per General technical specification of Section A clause- XXII and Operation and Maintenance of Bay extension as per PGCIL norms.	39) **Deleted** **Revised Annexure-B attached to this corrigendum**
11	**Annexure B - Bill of Quantity** Part-2: 400 kV AIS Orai and 400 kV AIS Pathrahi Pooling Substation Part-A: Tentative BOQ for 400 kV AIS Orai Pooling Substation	**37)** Operation and Maintenance for period Year one (01) of three (03) years of an entire Pooling substation including all necessary works and supply as per General technical specification of **Section A Annexure G** **37)** Operation and Maintenance for period Year two (02) of three (03) years of an entire Pooling substation including all necessary works and supply as per General technical specification of **Section A Annexure G** **37)** Operation and Maintenance for period Year three (03) of three (03) years of an entire Pooling substation including all necessary works and supply as per General technical specification of **Section A Annexure G**	**37) Deleted** **37) Deleted** **37) Deleted** **Revised Annexure-B attached to this corrigendum**
12	**Annexure B - Bill of Quantity** Part-2: 400 kV AIS Orai and 400 kV AIS Pathrahi	**20)** 33kV PEB and other tools & tackles and all accessories required as per technical specification of Section-B clause- XVI **UoM- Lot** **Quantity- 1**	**20)** 33kV PEB and other tools & tackles and all accessories required as per technical specification of Section-B clause- XVI **UoM- Lot** **Quantity- 2**

	Pooling Substation Part -B: Tentative BOQ for 400 kV AIS Pathrahi Pooling Substation	**21)** 33kV Switchgears and Accessories and other tools & tackles required as per technical specification of Section-B clause- XVII **UoM- Nos.** **Quantity- 1** **37)** Operation and Maintenance for period Year one (01) of three (03) years of an entire Pooling substation including all necessary works and supply as per General technical specification of **Section A Annexure G** **38)** Operation and Maintenance for period Year two (02) of three (03) years of an entire Pooling substation including all necessary works and supply as per General technical specification of **Section A Annexure G** **39)** Operation and Maintenance for period Year three (03) of three (03) years of an entire Pooling substation including all necessary works and supply as per General technical specification of **Section A Annexure G**	**21)** 33kV Switchgears and Accessories and other tools & tackles required as per technical specification of Section-B clause- XVII **UoM- Nos.** **Quantity- 2** **37) Deleted** **38) Deleted** **39) Deleted** **Revised Annexure-B attached to this corrigendum**
13	**Price Schedule and Bill of Quantity**	**PRICE SCHEDULE** <u>Details of Quantities for PART-B.1</u> <u>Orai Pooling Substation</u> 30. Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI- **UoM- Nos** **Quantity- 1** <u>Details of Quantities for PART-C.1</u> <u>Pathrahi Pooling Substation</u> Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI **UoM- Nos** **Quantity- 1**	**PRICE SCHEDULE** <u>Details of Quantities for PART-B.1</u> <u>Orai Pooling Substation</u> 30. Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI- **UoM- Set** **Quantity- 1** <u>Details of Quantities for PART-C.1</u> <u>Pathrahi Pooling Substation</u> Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI **UoM- Set** **Quantity- 1**

		ANNEXURE-B: BILL OF QUANTITY Part-A: Tentative BOQ for 400 kV AIS Orai Pooling Substation 30. Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI- **UoM- Nos** **Quantity- 1** Part -B: Tentative BOQ for 400 kV AIS Pathrahi Pooling Substation 30. Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI **UoM- Nos** **Quantity- 1**	**ANNEXURE-B: BILL OF QUANTITY** Part-A: Tentative BOQ for 400 kV AIS Orai Pooling Substation 30. Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI- **UoM- Set** **Quantity- 1** Part -B: Tentative BOQ for 400 kV AIS Pathrahi Pooling Substation 30. Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI **UoM- Set** **Quantity- 1** **Revised Annexure-B is attached to this corrigendum**
14	**Volume-I Information for Bidders**	**GPS coordinates of Land** The geographical co-ordinates of location1 are 25°50'03.5"N,79°14'50.9"E and that of location 2 are 26°23'27.8"N, 79°11'30.6"E.	**GPS coordinates of Land** 1. Location (Madhogarh) Latitude: 26°23'27.8"N, Longitude : 79°11'30.6"E 2. Location (Pathrahi) Latitude:26°23'24.18"N, Longitude : 79°19'02.17"E 3. Location (Orai) Latitude: 25°50'45.98"N, Longitude : 79°14'57.22"E **Note : The location of the PSS may vary within a maximum range of 500 meters of the coordinates specified above as per suitability of land.**
15	**SECTION - A General Technical Specification**	**2- Scope of Supply and Services** **2.2** - The scope of work covers design, engineering, assembly and testing at manufacturer's facility works, packing / dispatch and transportation to site (including transit insurance), storage, erection, testing & commissioning and operation and maintenance for 3	**2- Scope of Supply and Services** 2.2 - The scope of work covers design, engineering, assembly and testing at manufacturer's facility works, packing / dispatch and transportation to site (including transit insurance), storage, erection, testing &

		years of the following for Pooling Substation….. **2**. Operation and maintenance of the 400kV Madhogarh Pooling substation for three (3) Years. **7 General Requirements** **7.2** The contractor shall be fully responsible for providing all equipment, materials, system and services which are required to complete the construction and successful commissioning, operation and maintenance of the Substation in all respects. **13 Handing Over and Taking Over** 13.1 On successful completion of Operation and Maintenance period, the operational plant(s) and equipment's will be handed over to the employer in completely healthy and safe condition without any pending defect. During the handing over of the plant(s), the Contractor shall submit the following to consider final closer of contract.	commissioning ~~**and operation and maintenance for 3 years**~~ of the following for Pooling Substation….. **2. Deleted** **7 General Requirements** 7.2 The contractor shall be fully responsible for providing all equipment, materials, system and services which are required to complete the construction and successful commissioning, ~~**operation and maintenance**~~ of the Substation in all respects. **13 Handing Over and Taking Over** 13.1 ~~**On successful completion of Operation and Maintenance period,**~~ The operational plant(s) and equipment's will be handed over to the employer in completely healthy and safe condition without any pending defect. During the handing over of the plant(s), the Contractor shall submit the following to consider final closer of contract.
16	**Tender Drawings** **SLD** FCE-20523122-RE-DWG-SLD-9040-002	402- Bus VT-1 Core 3: Class PS 403- Bus VT-2 Core 3: Class PS	402- Bus VT-1 Core 3: Class 3P 403- Bus VT-2 Core 3: Class 3P
17	**QTS**	Annexure F - Appendix-1: Quality Technical Specification	**Revised QTS attached** Annexure F- Appendix-1: Quality Technical Specification
18	**Pooling Substation Part-2: Section - B Detailed Technical Requirements**	**I. Step Up Power Transformer** Clause 12. Technical Parameters 26) Percentage impedance of nominal tap at 75°C at 170 MVA Base HV LV1 & HV LV2 % (+/- 7.5% Tolerance) LV1-LV2 % (+/- 15% Tolerance)	**I. Step Up Power Transformer** Clause 12. Technical Parameters **26.** Percentage impedance of nominal tap at 75°C at 170 MVA Base **HV-LV1 & HV-LV2:** 15 % (min. on principal tap) (+/- 7.5% Tolerance)

			LV1-LV2: 20% (minimum) (as per IEC Tolerance)

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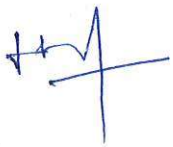

Schedules of Rates and Prices

Price Schedule 1.

SCHEDULE OF QUANTITIES AND PRICES (BILL OF QUANTITIES)

Item No.	Description	UoM	Qty	Amount (INR)	GST (%)	Amount with GST (INR)
Construction of 400kV Pooling Sub-stations						
A.1	Development of 400 kV GIS with 03 Nos. of 250/125/125MVA, 400/33/33kV Step-up Power transformers, 33 kV switchgears, Solar Park Control Monitoring System and associated auxiliary systems including civil & structural works at **Madhogarh** as per GTS for PSS including Bay Extension works at Orai PGCIL S/s tools and tackles and all accessories as per General technical specification	LS	1	Not to be quoted in Technical Bid		
B.1	Development of 01 No. 400 kV AIS Pooling Substation with 01 Nos. of 340/170/170MVA 400/33/33kV Step-up Power transformers, 33 kV switchgears, Solar Park Control Monitoring System and associated auxiliary systems including civil & structural works at **Orai** as per GTS for PSS	LS	1			
C.1	Development of 01 No. 400 kV AIS Pooling Substation with 01 Nos. of 340/170/170MVA, 400/33/33kV Step-up Power transformers, 33 kV switchgears, Solar Park Control Monitoring System and associated auxiliary systems including civil & structural works at **Patrahi** as per GTS for PSS	LS	1			
TOTAL COST						

Signature of Bidder

Details of Quantities for PART- A.1
400 kV GIS Madhogarh Pooling Substation

Sl. No	Item	Unit	Quantity
Supply, Construction, Erection, testing & commissioning of the following equipment/System			
1)	250 MVA, 400/33/33kV, three phase, three winding, ONAN/ONAF/OFAF, YNyn0yn0, OLTC Power Transformer bushing CTs, first fill oil, tools & tackles and all accessories required as per technical specification of **Section B Clause- I**	Sets	3
2)	400kV Gas insulated equipment for Factory assembled, metal-enclosed, SF6 GIS bay including GIB and relevant support structures with associated Breaker with CSD, CT, Disconnecting Switch & EMVT and other required accessories etc. for all Bay as per technical specification of **Section B Clause-II & III**	Sets	6
3)	Electric Overhead Traveling crane (EOT), tools & tackles and all accessories required as per technical specification **Section B Clause -II**	Set	1
4)	400kV Single Phase Surge Arrester (For Line Feeder- 6 Nos, For Transformer Feeder - 09 Nos), tools & tackles and all accessories required as per technical specification of **Section B Clause- IV**	Nos	15
5)	400kV Control and relay panel (CRP) and all accessories required as per the technical specification of **Section B clause- V**	Lot	1
6)	400kV Substation automation system (SAS) and all accessories required as per technical specification of **Section B clause- VI**	Lot	1
7)	Common Tariff metering panel with all standby meters for 400 KV system including provision of spare meters (Number of panels will be as per requirement) as per technical specification of **Section B Clause-VII**	Lot	1
8)	FOTE and all accessories required as per technical specification of **Section B Clause- VIII**	Lot	1
9)	400kV CVT, tools & tackles and all accessories required as per technical specification of **Section B Clause- IX**	Sets	2
10)	33kV Segregated Phase Busduct and all accessories required as per technical specification of **Section B Clause- X**	Sets	6
11)	33kV Switchgears and Accessories and all accessories required as per technical specification of **Section B clause- XI**	Sets	6
12)	3-Phase, 33kV Dynamic reactive power compensating Equipment **(+/-28** MVAr) and all accessories required as per technical specification of **Section-B Clause-XII**	Nos	2

13)	3-Phase, 33kV Capacitor Bank (**28 MVAr**) equipment and all accessories required as per technical specification of **Section-B Clause-XIII**	Nos	**4**
14)	33kV PEB and all accessories required as per technical specification of **Section-B Clause- XIV**	Lot	3
15)	33/0.433 kV, Oil filled, Outdoor type station service transformers (Capacity in tentative shall be finalized during detail engineering and may increase which contractor cannot put claim on Customer/Client), tools & tackles and all accessories required as per technical specification of **Section B Clause- XV**	Sets	2
16)	415V LT Switchboard and all accessories required as per technical specification of **Section B Clause- XVI**	Lot	1
17)	220V DC System and all accessories required as per technical specification of **Section B Clause- XVII**	Lot	1
18)	230V AC UPS system and all accessories required as per technical specification of **Section B Clause- XVIII**	Lot	1
19)	Power and Control cable and all accessories required as per technical specification of **Section B Clause- XIX**	Lot	1
20)	415V, 750 kVA DG set with acoustic enclosure: Continuous running duty. (however, the actual size shall be calculated based on design criteria of DG set in technical specification & detail engineering by vendor, no extra cost to Owner) and all accessories required as per technical specification of **Section B Clause- XX**	Nos	1
21)	Earthing & Lightning Protection system and all accessories required as per technical specification of **Section B Clause- XXI**	Lot	1
22)	Illumination system completes with, Lighting DB, Lighting Panel, LED lighting fixtures, lighting poles, high mast lighting, switch boxes, single phase receptacles, three phase welding receptacles, conduits, wires, poles, earthing wires, etc, and all accessories required as per technical specification of **Section B Clause- XXII**	Lot	1
23)	Miscellaneous items as per technical specification of **Section B Clause- XXIII**	Lot	1
24)	Erection and Commissioning Cost/Installation and all accessories required as per technical specification of **Section-B clause- XXIV**	Lot	1
25)	Air Conditioning & Ventilation System and all accessories required as per technical specification of **Section B Clause- XXV**	Lot	1
26)	Weather Monitoring system and all tools & tackles and all accessories required as per technical specification of **Section B Clause- XXVI**	Lot	1
27)	Fire Detection and Alarm System/Fire protection system and all accessories required as per technical specification of **Section-B clause- XXVII**	Lot	1
28)	Civil and Structural Construction Cost as per technical specification of **Section-B clause-XXVIII**	Lot	1

29)	400kV Switchyard Structures (Gantry and other equipment including Foundation) tools & tackles and all accessories required as per technical specification of **Section-B clause-XXVIII**	Lot	1
30)	Main Control Room Building required as per technical specification of **Section-B clause-XXVIII**	Lot	1
31)	Civil Works (Drains, Roads, Fencing, Gravel work, Land development) required as per technical specification of **Section-B clause-XXVIII**	Lot	1
32)	Unified Control and Monitoring System (UCMS), tools and tackles all accessories as per technical specification of **Section-B clause-XXIX**	Lot	1
33)	Phasor Measurement unit (PMU) at 400kV bay and all accessories required as per technical specification of **Section B clause- XXX**	Set	1
34)	Power Quality meter (PQM) at 400kV bay and all accessories required as per technical specification of **Section B clause- XXXI**	set	1
35)	Fiber Optic cables and all accessories required as per technical specification of **Section B Clause- XXXII**	Lot	1
36)	Surveillance and Access Control Systems and all accessories as per technical specification of **Section-B clause-XXXIII**	Lot	1
37)	IT infra - Data communication and workstations and all accessories as per technical specification of **Section-B clause-XXXIV**	Lot	1
38)	Bay Extension works at Orai PGCIL S/s tools and tackles and all accessories as per General technical specification of **Section A clause- V & VII**	Lot	1

Note: The equipment, which is not listed in the Bill of Quantities but required for complete, successful operation of plant, also shall be in the scope of contractor.

Details of Quantities for PART-B.1
Orai Pooling Substation

SI.NO	Description	UoM	Quantity
1)	340 MVA, 400/33/33kV, three phase, three winding, ONAN/ONAF/OFAF, YNyn0yn0, OLTC Power Transformer bushing CTs, first fill oil, tools & tackles and all accessories required as per technical specification of **Section-B clause- I**	Nos	1
2)	400kV, 2500 A, 63kA for 1 Sec rated SF6 3 poles, gang operated circuit breaker with supporting structure & other tools & tackles and all accessories required as per technical specification of **Section-B clause- II**	Nos	5
3)	400 kV, two core, Ratio :2000-2500/1A,63kA/1sec-To Tariff Meter 400 kV, six core, Ratio :2000-2500/1A,63kA/1sec-to Main protection, control and general metering other tools & tackles and all accessories required as per technical specification of **Section-B clause- III**	Nos	7
4)	400kV Single phase oil filled capacitive voltage transformer – Outdoor Equipment (AIS) for Tariff metering & protection and other tools & tackles and all accessories required as per technical specification of **Section-B clause- IV**	Nos	2
5)	(400kV, 2500 A rated, 63kA for 1 Sec, 3 pole horizontal double break center post rotating, outdoor air break motorized with Single earth switch) 400kV, 2500 A rated, 63kA for 1 Sec, 3 pole horizontal double break centre post rotating, outdoor air break motorized isolator with double earth switch Disconnector with earth switch and other tools & tackles and all accessories required as per technical specification of **Section-B clause- V**	Nos	15

Sl.NO	Description	UoM	Quantity
6)	Busbar and associated items and other tools & tackles and all accessories required as per technical specification of **Section-B clause- VI**	Lot	2
7)	400 KV, 1 phase surge arrester – Outdoor Equipment (AIS) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- VII** a) For line feeder -6 b) For transformer feeder-3	Nos	9
8)	Earthing & Lightning Protection system tools & tackles and all accessories required as per technical specification of **Section-B clause- VIII**	Lot	1
9)	Illumination system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- IX**	Lot	1
10)	LT Switch board and other tools & tackles and all accessories required as per technical specification of **Section-B clause- X**	Lot	1
11)	DC System and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XI**	Lot	1
12)	3-Phase, 33kV Fixed Capacitor Bank (**24 MVAr)** and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XII**	Nos	2
13)	Power and Control cable and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIII**	Lot	1
14)	230V AC UPS system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIV**	Lot	1

Sl.NO	Description	UoM	Quantity
15)	Civil and Structural Construction Cost and other tools & tackles and all accessories required as per technical specification **of Section-B clause- XV**	Lot	1
16)	400kV Switchyard Structures (Gantry and other equipment including Foundation) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
17)	Main Control Room Building and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
18)	Civil Works (Drains, Roads, Fencing, Gravel work, Land development) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
19)	Water infrastructure and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
20)	33kV PEB and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XVI**	Lot	2
21)	33kV Switchgears and Accessories and other tools & tackles required as per technical specification of **Section-B clause- XVII**	Nos	2
22)	33kV Segregated Phase Busduct and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XVIII**	Set	2
23)	Unified control and monitoring system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIX**	Lot	1

Sl.NO	Description	UoM	Quantity
24)	Communication cable and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XX**	Lot	1
25)	Station Service Transformer(500kVA) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXI**	Nos	2
26)	HVAC and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXII**	Lot	1
27)	Fire Detection and Alarm System and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIII**	Lot	1
28)	Tariff metering panel and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIV**	Nos	2
29)	Power quality meter (PQM) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXV**	Nos	1
30)	Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVI**	Set	1
31)	Fiber optic test equipment (FOTE) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVII**	Lot	1
32)	400kV SAS and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVIII**	Lot	1
33)	400kV CRP and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIX**	Lot	1

SI.NO	Description	UoM	Quantity
34)	Spare, maintenance, Tools and tackles and Miscellaneous items as per the technical requirement of **Section-B clause- XXX & clause- XXXI**	Lot	1
35)	Surveillance and Access Control System as per the technical requirement of **Section-B clause- XXXII**	Lot	1
36)	Weather Monitoring System and Tools and tackles) as per the technical requirement of **Section-B clause- XXXIII**	Lot	1

Note : The equipment, which is not listed in the Bill of Quantities but required for complete, successful operation of plant, also shall be in the scope of contractor.

Details of Quantities for PART-C.1
Pathrahi Pooling Substation

Sr. No	Description	UoM	Quantity
1)	340 MVA, 400/33/33kV, three phase, three winding, ONAN/ONAF/OFAF, YNyn0yn0, OLTC Power Transformer bushing CTs, first fill oil, tools & tackles and all accessories required as per technical specification of **Section-B clause- I**	Nos	1
2)	400kV, 2500 A, 63kA for 1 Sec rated SF6 3 poles, gang operated circuit breaker with supporting structure & other tools & tackles and all accessories required as per technical specification of **Section-B clause- II**	Nos	1
3)	400 kV, two core, Ratio :2000-2500/1A,63kA/1sec-To Tariff Meter 400 kV, six core, Ratio :2000-2500/1A,63kA/1sec-to Main protection, control and general metering other tools & tackles and all accessories required as per technical specification of **Section-B clause- III**	Nos	1
4)	400kV Single phase oil filled capacitive voltage transformer – Outdoor Equipment (AIS) for Tariff metering & protection and other tools & tackles and all accessories required as per technical specification of **Section-B clause- IV**	Nos	1
5)	Disconnector with earth switch and other tools & tackles and all accessories required as per technical specification of **Section-B clause- V** (400kV, 2500 A rated, 63kA for 1 Sec, 3 pole horizontal double break centre post rotating, outdoor air break motorized with Single earth switch) 400kV, 2500 A rated, 63kA for 1 Sec, 3 pole horizontal double break centre post rotating, outdoor air break motorized isolator with double earth switch	No. s	2
6)	Busbar and associated items and other tools & tackles and all accessories required as per technical specification of **Section-B clause- VI**	Lot	2
7)	400 KV, 1 phase surge arrester – Outdoor Equipment (AIS) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- VII**	Nos	2

Sr. No	Description	UoM	Quantity
	a) For line feeder -6 b) For transformer feeder-3		
8)	Earthing & Lightning Protection system tools & tackles and all accessories required as per technical specification of **Section-B clause- VIII**	Lot	1
9)	Illumination system and other tools & tackles and all accessories required as per technical specification of S**ection-B clause- IX**	Lot	1
10)	LT Switch board and other tools & tackles and all accessories required as per technical specification of **Section-B clause- X**	Lot	1
11)	DC System and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XI**	Lot	1
12)	3-phase, 33kV Fixed Capacitor Bank (24 MVAr) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XII**	Nos	**2**
13)	Power and Control cable and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIII**	Lot	1
14)	230V AC UPS system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIV**	Lot	1
15)	Civil and Structural Construction Cost and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
16)	400kV Switchyard Structures (Gantry and other equipment including Foundation) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
17)	Main Control Room Building and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
18)	Civil Works (Drains, Roads, Fencing, Gravel work, Land development) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
19)	Water infrastructure and other tools & tackles and all accessories required	Lot	1

Sr. No	Description	UoM	Quantity
	as per technical specification of **Section-B clause- XV**		
20)	33kV PEB and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XVI**	Lot	2
21)	33kV Switchgears and Accessories and other tools & tackles required as per technical specification of **Section-B clause- XVII**	Nos	2
22)	33kV Segregated Phase Busduct and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XVIII**	Set	2
23)	Unified control and monitoring system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIX**	Lot	1
24)	Communication cable and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XX**	Lot	1
25)	Station Service Transformer(500kVA) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXI**	Nos	2
26)	HVAC and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXII**	Lot	1
27)	Fire Detection and Alarm System and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIII**	Lot	1
28)	Tariff metering panel and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIV**	No.s	2
29)	Power quality meter (PQM) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXV**	Nos	1
30)	Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVI**	Set	1
31)	Fiber optic test equipment (FOTE) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVII**	Lot	1

Sr. No	Description	UoM	Quantity
32)	400kV SAS and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVIII**	Lot	1
33)	400kV CRP and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIX**	Lot	1
34)	Spare, maintenance, Tools and tackles and miscellaneous items as per the technical requirement of **Section-B clause- XXX and clause- XXXI**	Lot	1
35)	Surveillance and Access Control System as per the technical requirement of **Section-B clause- XXXII**	Lot	1
36)	Weather Monitoring System and tools & tackles and all accessories required as per technical specification of **Section-B clause- XXXIII**	Lot	1

Note: The equipment, which is not listed in the Bill of Quantities but required for complete, successful operation of plant, also shall be in the scope of contractor.

In accordance with the provisions of GCC Clause 12 (Terms of Payment), the Employer shall pay the Contractor in the following manner and at the following times, on the basis of the Price Breakdown given in the section on Price Schedules. Payments will be made in the currencies quoted by the Bidder unless otherwise agreed between the parties.

TERMS OF PAYMENT

1.0 Terms of Payment shall be as hereunder:

1.1 The Contract Price shall be as specified in Letter of Award.

1.2 Subject to any deduction which the Employer may be authorized to make under the Contract and /or any additions or deductions provided under General Conditions (GCC) clauses power to vary or omit work, the Contractor shall be entitled to payment as follows:

Clause no. 12 of GCC shall be read with the following:

1.2.1 For Supplies:

In respect of supply of plant and equipment, the following payments shall be made:

S. No	Milestones	Percentage
(Supply Portion)		
1.	Supply and receipt of the materials/items at site along with verification of material at site by the consignee and on submission of documents indicated herein under. (a) Evidence of dispatch & receipt (R/R of receipted L/R). (b) Contractor's detailed invoice & packing list identifying contents of each shipment. (c) Insurance Policy / Certificate. (d) Manufacturer's / Contractor's guarantee Certificate of Quality. (e) Material Dispatch Clearance Certificate (MDCC) for dispatch issued by Owner. (f) Test certificate.	**75%**
2.	Construction/Erection/Installation of material at site and certification by engineer in-charge.	**10%**
3.	Successful Testing and Commissioning	**10%**
4.	Acceptance and Taking Over by the Owner.	**5 %**

1.2.2 For Erection, Testing and Commissioning:

S. No	Milestones	Percentage
(Erection, Testing and Commissioning portion)		
1.	The erection price component will be paid on progressive basis depending on the actual work done i.e. on completion of erection of the respective items and on certification of the same by the Owner.	**90%**
2.	The Balance of erection price component shall be paid within sixty (60) days after successful testing & commissioning of the project and Taking Over by the Owner.	**10%**

Note:

1. Interest bearing mobilisation advance for 10% of the order value against submission of Bank Guarantee for 110% of the mobilisation advance shall be released and recovered as per relevant GCC clauses.

2. Clause No. 13 (iv) of GCC be read as under:

"Recovery of such advance paid to the Contractor shall be with interest upto the date of recovery which shall be made out of 75% payment scheduled in Appendix 1: Terms and Procedures of Payment of the Form of Contract Agreement of Volume-V (Forms & Procedures)".

3. Bidder shall submit detailed Billing breakup after LOA to EIC

5% payment of the contract price of each bill/ invoice raised against Price Schedule above shall be deducted and kept as a security deposit. The above deducted amount shall be released after satisfactory completion of Defect Liability Period. The above deducted amount, if so desired by the Contractor during execution of contract may be released on submission of Bank Guarantee (BG) of equal amount.

The Contractor shall furnish the said Bank Guarantee (BG) to the Engineer-in-Charge, issued from an Indian Nationalised Bank or State Bank of India or any Scheduled Bank in India as per the Form enclosed as Form-18 to Vol. V – Forms & Procedures. The validity of BG shall be upto Ninety (90) days beyond the Defects liability period as specified in the Contract. Interest or any other charges, whatsoever, will not be payable by the Employer on the security deposit amount/ bank guarantee.

PAYMENT PROCEDURES

The procedures to be followed in applying for certification and making payments shall be as follows:

1.0 Unless stipulated otherwise hereunder, all payments shall be released to the Contractor as per Price Schedule No. 1after fulfillment of the requirements specified herein above under Terms of Payment.

i) Payments for other balance of items excluding Specified spares and Tools and Instruments shall be claimed by the Contractor in not more than Fifteen installments each.

ii) Payment for Specified spares and Tools and Instruments for each of these items shall be claimed in not more than Ten installments each.

iii) Payment for Recommended spares (if any) for these items shall be claimed separately by the Contractor after shipment/ dispatch of such spare items restricted to total sixteen installments.

3.0 Subject to the fulfillment of requirements mentioned as above, all Payments in line with the requirements of Terms of Payment shall be arranged as per following procedure:

3.1 ~~The initial 10% advance payment in currency other than Employer country's currency shall be arranged through remittance to the Contractor's bank. The Contractor shall provide details of his bank account alongwith routing details to the Employer. The contractor (For Indian Bidder) shall submit a letter from his Bank certifying that the foreign currency account in which the contractor desired to receive payments has been opened/under operation as per RBI Guidelines~~.

3.2 The initial 10% interest bearing advance payment in Employer country's currency shall be arranged through remittance to the Contractor's Bank through ECS/RTGS. ~~The contractor (For Foreign Bidder) shall open a bank account in India in which the contractor desired to receive Employer country's currency payments. He shall arrange all permits / permissions etc. to open such account and shall submit a copy of the same to the Employer.~~

3.3 Except as above, other payments shall be arranged through irrevocable Letter of Credit opened in a designated Bank (Issuing bank), which shall make payments to the Contractor upon presentation of documents against conditions specified in the Letter of Credit to the Negotiation bank of the Contractor. The contractor shall provide quarterly cash flow statement as per payment schedule two months in advance to the Engineer-in-charge to facilitate opening/extension of L/C in time. The amount of L/C shall be equivalent to the projected quarterly cash flow of the Contractor. The L/C for the said amount shall be opened by the Employer thirty (30) days prior to the scheduled date of 1st payment under the Contract against the L/C and shall be maintained thereafter by extending the same on quarterly basis as per the projected cash flow of the Contractor. The conditions of Letter of Credit shall be as below:

- Issuing bank - State Bank of India or *any Designated bank by the Employer.*
- Form of L/C - Irrevocable
- Date of issue - Thirty (30) days prior to the date of 1st payment under the contracts against the L/C
- Date of Expiry - Extendable on quarterly basis till conclusion of the contract.
- Applicant - NHPC Ltd.
- Beneficiary - *(name of the contractor)*
- Amount - Equivalent to quarterly cash flow

- Available with/by -(*Name of the confirming bank or any bank by negotiation)*
- Drafts at - By negotiation
- Drawee - *(Name of the confirming bank)*
- Partial Shipment -Allowed *(Applicable for despatch of materials only)*
- Transhipment - Not Allowed/ Allowed in exceptional circumstances only *(Applicable for despatch of materials only)*
- Name of port of Loading/despatch - Anywhere, Delivery EXW or CIP/CIF Indian Port (INCOTERMS-2010) *(Applicable for despatch of materials only)*
- Destination Port - Any Indian Port *(Applicable for despatch of materials only)*
- Last date of shipment - *(Date to be given by the contractor) (Applicable for despatch of materials only)*
- Description of goods -(*to be given by the contractor) (Applicable for despatch of materials only)*
- Documents required - **A.** For each partial shipment (~~FOB or FCA or~~ EXW) under Schedule following clean documents in triplicate shall be presented to the Negotiating bank. All documents must indicate L/C Number. *(Applicable for despatch of materials only)*

  (i) Original Invoice

  (ii) ~~Clean on board Bill of Lading / AWB *(for Off- shore supply)* Or~~ RR/LR/GR *(for on-shore supply).*

  (iii) Insurance Declaration

  (iv) Material Despatch Clearance Certificates/Certificate of waiver of inspection by Employer

  (v) Packing list

  ~~(vi) Certificate of Origin of Goods issued by chamber of commerce of that country or any other authorised organization (in case of Foreign Origin).~~

  B. For each payment under Schedule 1 other than **A.** above & 10% initial interest bearing advance, if any, following clean documents shall be presented to the Negotiating bank. All documents must indicate L/C Number.

  (i) Original Invoice.

  (ii) Statement of Performance from NHPC as per Proforma enclosed in Annex-1 appended with this Appendix issued by Engineer In Charge.

- Additional Conditions - *(Payment terms)*
- Details of charges - All commissions and charges arising in the Employer's Country shall be borne by the Contractor/ ~~Beneficiary and all commissions and charges arising outside Employer's Country shall be borne by the Beneficiary.~~
- Presentation period - i) Documents must be presented within 30 days from date of shipping *(Applicable for despatch of materials only)*

ii) Documents must be presented within 30 days from date of issue of 'Statement of Performance' by the Engineer- In- Charge *(for payments under Schedule 1 to 3 other than i) above & interest bearing advance, if any)*

- Confirmation - Confirmed
- Special Instruction - Reimbursement instruction: Upon receipt of tested telex/authenticated SWIFT from Negotiating bank that the documents are found clean and complied with L/C terms and conditions, payment will be effected within 7 working days as per Negotiating bank's instructions.

This L/C conditions is subject to UCP (Rev.1993) ICC Publication No.500

4.0 **In case of MSEs,**

All the payments for the supplies and / or services [**as applicable**] rendered by MSEs (Micro & Small Enterprises) Supplier / Contractor under the Contract shall be released within forty five days from the day of acceptance*.

***Day of Acceptance means –** day of the actual delivery of goods or the rendering of services; or where any objection is made in writing by the buyer regarding acceptance of goods or services within fifteen days from the date of the delivery of goods or the rendering of services, the day on which such objection is removed by the supplier.

In case, payment are not released as mentioned above, NHPC shall pay the principal amount plus compound interest with monthly rests from the date immediately following the date agreed upon @ three times of bank rates as notified by Reserve bank of India from time to time.

In case of non-MSEs,

All the payments for the supplies and / or services [**as applicable**] rendered by non-MSEs (non-Micro & Small Enterprises) Supplier / Contractor under the Contract shall be released within forty five days from the receipt of ~~materials at site and on submission of~~ invoice/bills etc. from the contractor/supplier complete in all respect.

In case, payment are not released as mentioned above, NHPC shall pay the principal amount plus simple interest from the date immediately following the date agreed upon @ 6% (six percent) per annum.

The payment towards interest, if any, shall be settled at the time of making payments of the respective invoices.

5.0 Payment towards Price adjustment

Any variation in price due to price adjustment provision of Appendix-2 shall be effected on presentation of **debit note/credit note, as prescribed under the GST law,** supported by calculations as per formulae specified therein along with documentary evidence for different indices applicable for Price Adjustment.

Any increase in price due to price adjustment provision shall be payable as follows:

Supply of Goods Portion (i.e. Price Schedule-1):

90% (ninety percent) of the price adjustment amount for the respective shipment shall be paid on receipt of said shipment at site **and issuance of Debit Note, as prescribed under the GST law, by the Contractor.** Balance 10% (ten percent) of the price adjustment amount shall be paid alongwith the final payment.

Any interest on GST payable due to increase in price due to price adjustment shall be to the Contractor's account and Employer shall not reimburse any amount on this account.

For any reduction in Price due to price adjustment provisions the **Contractor shall issue 'Credit note', as prescribed under the GST law. Further, the reduction in Price shall be effected by recovering 100% of the reduction amount along with applicable GST, if any charged earlier, from Contractor's invoices falling immediately due for payment or any other payments.**

A Navratna Company

FORM-16

Performance Guarantee Form for Subsidiary Company (in lieu of Parent/ Holding Company Bank Guarantee

(To be stamped in accordance with Stamp Act if any, of the Country of the issuing Bank)

Bank Guarantee No. .....
Date .....…….

To,
[Employer's Name & Address]

Dear Sirs,

In consideration of the …….. [Employer's Name]…….. (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) having awarded to M/s…….. *[Contractor' Name]* with its Registered / Head office at …….. (hereinafter referred to as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors administrators, executors and assigns) a Contract by issue of Employer's Letter of Award No. _____ dated …….. and the same having been acknowledged by the contractor, for ……..[Contract sum in figures and words] for …… *[Name of the work],* a subsidiary of …… [Name of the Parent /Holding Company] (hereinafter referred to as the "Parent/Holding Company), which expression shall unless repugnant to the context or meaning thereof, include its successors administrators, executors and assigns), the said parent / holding company having agreed to enter into a separate Agreement No. ……dated ……..with the Employer and also agreed to provide a Contract Performance Guarantee by Bidder (Subsidiary company) for the faithful performance of the entire Contract by the Contractor equivalent to …….(*)…….of the said value of the aforesaid work under the Contract to the Employer.

We ..... [Name & Address of the Bank] ..…..... having its Head Office at ..... (hereinafter referred to as the 'Bank', which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, on demand any and all monies payable by the Parent / holding Company to the extent of …….(*)……. as aforesaid at any time up to…….. (@)……. *[days/month/year]* without any demur, reservation, contest, recourse or protest and/or without any reference to the Contractor / Parent / holding company. Any such demand made by the Employer on the Bank shall be conclusive and binding notwithstanding any difference between the Employer and the Parent / holding Company or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Employer

A Navratna Company

and further agrees that the guarantees herein contained shall continue to be enforceable till the Employer discharges this guarantee or till ……. *[days/month/year]* whichever is earlier.

The Employer shall have the fullest liberty, without affecting in any way the liability of the Bank under this guarantee, from time to time to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The Bank shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would, but for this provision have the effect of relieving the Bank.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor/ Parent /holding Company and notwithstanding any security or other guarantee the Employer may have in relation to the Contractor's liabilities.

Notwithstanding anything contained hereinabove:

i) Our liability under this Bank Guarantee shall not exceed ……..

ii) This Bank Guarantee shall be valid up to …….

iii) We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if Employer serve upon Bank a written claim or demand on or before ……@.....

Dated this..... day of ..... 20…..... at .....

WITNESS	**Signed for and on behalf of the Bank**
1.	.....
(Signature)	(Signature)
.....	.....

(Name)	(Name)
.....	.....
(Official Address)	(Designation with Bank Stamp)
2.	
(Signature)	Including staff Authority No. with complete Bank Address with Tel. Fax Nos …….....
.....	
(Name)	
.....	
(Official Address)	

Communication address of the Bank

Name of the contact person

Tel. No.

Fax No.
Email:

Notes: 1. (*) This sum shall be five percent (5%) of the Contract Price (As mentioned in Para 4.0 of Notification of Award.)

(@) This date will be Ninety (90) days beyond the Defects liability period as specified in the Contract.

~~(**) Employer may also present any of his demands at the counters of the..... (Name and branch of the Bank in India)..... for further relay to us. (To be inserted in case of a foreign currency bank guarantee issued by an overseas bank outside India)~~

~~(+) This date will be the date of issue of Defects Liability Certificate.~~

2. Bank Guarantee should be executed on appropriate stamp paper of requisite value, such stamp paper should be purchased in the name of Issuing Bank, not more than six (6) months prior to execution/issuance of Bank Guarantee. The name of the purchaser should appear at the back side of stamp paper in the Vendors Stamp. Bank guarantee should contain rubber stamp of the authorized signatory of the bank indicating the name, designation and signature/power of attorney number as well as telephone/ fax numbers with full correspondence address of the Bank.
~~In case the same is issued by a first class International Bank, the law prevalent in~~

FORM- 19

ESCROW ACCOUNT AGREEMENT

THIS ESCROW ACCOUNT AGREEMENT is entered into on this the *** day of *** 20**.
AMONGST

1 [**** LIMITED], a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at **** (hereinafter referred to as the "Contractor" which expression shall, unless repugnant to the context or meaning thereof, include its successors, permitted assigns and substitutes);

2 ****[name and particulars of the Escrow Bank] and having its registered office at ****(hereinafter referred to as the "Escrow Bank" which expression shall, unless repugnant to the context or meaning thereof, include its successors and substitutes); and

3 M/s Bundelkhand Saur Urja Limited, (A joint venture of NHPC Limited and UPNEDA) , (hereinafter referred to as the BSUL and/or the Employer/Owner") which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns).

WHEREAS:

(A) The Employer had entered into Contract Agreements with the Contractor for execution of Electrical Infrastructure Works for evacuation of Power generated from 1200 MW Solar Power park in District Jalaun, Uttar Pradesh" (03 Nos. Pooling Substation (33/400 KV) Civil works of the ***** (name of the project) awarded vide letter No. _____, ---- Project and Original contract Agreement signed on ----- Project_____.

(B) Accordingly, as per clause no 9 of 14.7 of Particular ConditionsSCC, the Contractor is required to establish an Escrow Account, inter alia, on the terms and conditions stated therein.

NOW IT IS HEREBY AGREED as follows:

1 DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

"Agreement" means this Escrow Account Agreement and any amendment thereto made in accordance with the provisions contained herein;
"Escrow Account" means an escrow account established in terms of and under this Agreement;

"Parties" means the parties to this Agreement collectively and "Party" shall mean any of the Parties to this Agreement individually;

1.2 Interpretation

1.2.1 —The words and expressions beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein, and the words and expressions used in this Agreement and not defined herein shall, unless repugnant to the context, have their literal English meaning. Words importing the singular only also include the plural and vice versa where the context requires.

1.2.2 References to Clauses are, unless stated otherwise, references to Clauses of this Agreement.

2 ESCROW ACCOUNT

2.1 —Escrow Bank to act as trustee

2.1.1 The Contractor hereby appoints the Escrow Bank to act as trustee for the Employer and the Contractor in connection herewith and authorises the Escrow Bank to exercise such rights, powers, authorities and discretion as are specifically delegated to the Escrow Bank by the terms hereof together with all such rights, powers, authorities and discretion as are reasonably incidental hereto, and the Escrow Bank accepts such appointment pursuant to the terms hereof.

2.1.2 The Contractor hereby declares that all rights, title and interest in and to the Escrow Account shall be vested in the Escrow Bank and held in trust for the Employer and the Contractor, and applied in accordance with the terms of this Agreement. No person other than the Employer, and the Contractor shall have any rights hereunder as the beneficiaries of or as third party beneficiaries under this Agreement.

2.2 Acceptance of Escrow Bank

The Escrow Bank hereby agrees to act as such and to accept all payments and other amounts to be delivered to and held by the Escrow Bank pursuant to the provisions of this Agreement. The Escrow Bank shall hold and safeguard the Escrow Account during the term of this Agreement and shall treat the amount in the Escrow Account as monies deposited by the Contractor or the Employer with the Escrow Bank. In performing its functions and duties under this Agreement, the Escrow Bank shall act in trust for the benefit of, and as agent for, the Employer and the Contractor or their nominees, successors or assigns, in accordance with the provisions of this Agreement.

2.3 Establishment and operation of Escrow Account

2.3.1 Immediately after execution of this Agreement, the Contractor shall open and establish the Escrow Account with the **** (name of Branch) Branch of the Escrow Bank. The Escrow Account shall be denominated in Indian National Rupees.

2.3.2 The Escrow Bank shall maintain the Escrow Account in accordance with the terms of this Agreement and its usual practices and applicable regulations, and pay the maximum rate of interest payable to similar customers on the balance in the said account from time to time.

2.3.3 The Escrow Bank and the Contractor shall, after consultation with the Employer, agree on the detailed mandates, terms and conditions, and operating procedures for the Escrow Account, but in the event of any conflict or inconsistency between this Agreement and such mandates, terms and conditions, or procedures, this Agreement shall prevail.

2.4 Escrow Bank's fee

The Escrow Bank shall be entitled to receive its fee and expenses in an amount, and at such times, as may be agreed between the Escrow Bank and the Contractor. For the avoidance of doubt, such fee and expenses relating to opening and operation of said account shall be borne by the Contractor. The Employer shall not be held liable for any claim of Escrow Bank from the Contractor with regard to such fee and expenses.

2.5 Rights of the parties

The rights of the Employer and the Contractor in the monies held in the Escrow Account are set forth in their entirety in this Agreement and the Employer and the Contractor shall have no other rights against or to the monies in the Escrow Account.

3 DEPOSITS INTO ESCROW ACCOUNT

3.1 Employer intends that funds released for the project as advance or against work done is deposited in the ESCROW account to ensure that these are utilized for the project itself and Contractor & their approved sub-contractors/sub-–vendors are not able to divert project funds to their other business

3.2 **Interest on deposits**

The Escrow Bank agrees and undertakes that all interest accruing on the balances of the Escrow Account shall be credited to the Escrow Account and shall be used to make due payments in the manner as provided in Clause 4 of this Agreement.

4 -WITHDRAWALS FROM ESCROW ACCOUNT

4.1 Withdrawals

The Escrow Bank shall allow withdraw and appropriate the amounts from the Escrow Account strictly in accordance with the instructions issued by the Employer i.e CEO, BSUL to the Contractor, as mutually agreed/decided by Employer, and Contractor; provided that such amounts shall be appropriated in the following order:

(a) All payments relating to construction/ completion of the project;

(b) All payments relating to construction/completion of other projects of the Employer under execution by the Contractor; and

(c) Balance, if any, in accordance with the instructions of the Contractor after receiving the prior written approval of the Employer.

4.2 All payments relating to construction/completion of the Project

(i) The Contractor shall provide the Employer with the following details:

(a) The amounts due for payment to the suppliers/sub-contractors in respect of the work already completed;

(b) The remaining works in the Project along with the estimated costs of the respective works and the schedule for completion of such remaining works.

(c) The monthly/bi-annual/annual or any other periodic schedule of funds, (as agreed with the Employer), required to complete the above remaining works.

(ii) The ~~Project authority/~~Employer -shall verify the genuineness in respect of the above overdue payments/remaining works, the associated costs, the schedule and the (periodic) requirement of funds.

(iii) On approval of Employer and subject to availability of funds in the designated Escrow Account, the total requirement of funds shall be earmarked for payment of the outstanding dues and completion of the remaining works of the Projects.

(iv) The Contractor shall then be allowed to withdraw the funds required to meet his obligations in the order mentioned under (i) above for completion of the project.

(v) Balance amounts in the Escrow Account, if available, shall be earmarked and concurrently used for the completion of other projects of Employer, as per conditions set forth in this Agreement keeping the progress work in view.

4.3 All payments relating to construction/completion of other projects of the Employer

(i) Shall be applicable to other projects of the Employer being executed by the Contractor.

(ii) For each of the other projects, provisions applicable to the main project shall be applicable.

4.4 Post completion of the Project and completion of other projects of the Employer, and subject to availability of funds in the Escrow Account, balance funds shall be appropriated in accordance with the instructions of the Contractor in terms of the this Agreement.

5 Event of Escrow Default

5.1 Following events shall constitute an ‘event of default’ by the Contractor unless such event of default has occurred as a result of Force Majeure or any act or omission of the Employer or the Escrow Bank:

(i) The Contractor causes the Escrow Bank to transfer funds to any account of the Contractor in breach of the terms of Escrow account Agreement;

(ii) The Contractor fails to make any refund due to the Employer in breach of the terms of Escrow account Agreement within 5(five) business days of such refund becoming due;

(iii) The Contractor commits or causes any other breach of the provisions of Escrow Account Agreement and fails to cure the same within a Cure Period of 5 (five) business days; or

6 OBLIGATIONS OF THE ESCROW BANK

6.1 Segregation of funds

Monies received by the Escrow Bank under this Agreement shall, until used or applied in accordance with this Agreement, be held by the Escrow Bank in trust for the purposes for which they were received, and shall be segregated from other funds of the Escrow Bank.

6.2 No set off

The Escrow Bank agrees not to claim or exercise any right of set off, banker's lien or other right or remedy with respect to amounts standing to the credit of the Escrow Account. For the avoidance of doubt, it is hereby acknowledged and agreed by the Escrow Bank that the monies held by the Escrow Bank in the Escrow Account shall not be considered as part of the assets of the Escrow Bank and being trust property, shall in the case of bankruptcy or liquidation of the Escrow Bank, be wholly excluded from the assets of the Escrow Bank in such bankruptcy or liquidation.

6.3 Regulatory approvals

The Escrow Bank shall use its best efforts to procure, and thereafter maintain and comply with, all regulatory approvals required for it to establish and operate the Escrow Account. The Escrow Bank represents and warrants that it is not aware of any reason why such regulatory approvals will not ordinarily be granted to the Escrow Bank.

6.4 Independent Concurrent Audit

A firm shall be engaged to carry out independent concurrent audit for the purpose of monitoring the utilization of funds from escrow bank account.

7 TERMINATION OF ESCROW AGREEMENT

7.1 Duration of the Escrow Agreement

This Agreement shall remain in full force and effect till completion of the Project , unless terminated earlier by consent of all the Parties or otherwise in accordance with the provisions of this Agreement.

7.2 —Substitution of Escrow Bank

The Contractor may, by not less than 45 (forty five) days prior notice to the Escrow Bank, the Employer , terminate this Agreement with Escrow Bank and appoint a new Escrow Bank, provided that the new Escrow Bank is acceptable to Employer and arrangements are made to the satisfaction of Employer for transfer of amounts deposited in the Escrow Account to a new Escrow Account established with the successor Escrow Bank. The termination of this Agreement shall take effect only upon coming into force of an Escrow Account Agreement with the substitute Escrow Bank.

7.3 Closure of Escrow Account

The Escrow Bank shall close the Escrow Account at the request made by the Contractor and the Employer and pay any amount standing to the credit thereof to the Contractor. Upon closure of the Escrow Account hereunder, the Escrow Agreement shall be deemed to be terminated.

8 MISCELLANEOUS PROVISIONS

8.1 Governing law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the Courts at Faridabad shall have jurisdiction over all matters arising out of or relating to this Agreement.

8.2 Waiver of sovereign immunity

The Contractor unconditionally and irrevocably:

(a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;

(b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Contractor with respect to its assets;

(c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and

8.3 Alteration of terms

All additions, amendments, modifications and variations to this Agreement shall be effectual and binding only if in writing and signed by the duly authorised representatives of the Parties.

8.4 No third party beneficiaries

This Agreement is solely for the benefit of the Parties and no other person or entity shall have any rights hereunder.

8.5 Successors and assigns

This Agreement shall be binding on and shall inure to the benefit of the Parties and their respective successors and permitted assigns.

8.6 Notices

All notices or other communications to be given or made under this Agreement shall be in writing and shall either be delivered personally or sent by courier or registered post with an additional copy to be sent by e-mail. The address for service of each Party and its e-mail are set out under its name on the signing pages hereto. A notice shall be effective upon actual receipt thereof, save that where it is received after 5.30 (five thirty) p.m. on a business day, or on a day that is not a business day, the notice shall be deemed to be received on the first business day following the date of actual receipt. Without prejudice to the foregoing, a Party giving or making a notice or communication by e-mail shall promptly deliver a copy thereof personally, or send it by courier or registered post to the addressee of such notice or communication. It is hereby agreed and acknowledged that any Party may by notice change the address to which such notices and communications to it are to be delivered or mailed. Such change shall be effective when all the Parties have notice of it.

8.7 Language

All notices, certificates, correspondence and proceedings under or in connection with this Agreement shall be in English.

8.8 Original Document

This Agreement may be executed in three counterparts, each of which when executed and delivered shall constitute an original of this Agreement.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND	(Signature)
DELIVERED	(Name)
For and on behalf of	(Designation)

CONTRACTOR by:

(Address)

SIGNED, SEALED AND

DELIVERED

For and on behalf of
ESCROW BANK by:

(Signature)

(Name)
(Designation)
(Address)
Fax No./E-mail

SIGNED, SEALED AND

DELIVERED

For and on behalf of
Employer~~NHPC Ltd.~~ by:

(Signature)

(Name)
(Designation)
(Address)
Fax No./E-mail

In the presence of

1.

2.

Annexure F - Appendix-1:
Quality Technical Specification

1. 420kV Air Insulated Switchgear (AIS)

1.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

1.2 Shop Test

The AIS shall be routine tested as per IEC 600034-16& IEEE 421-1,2,3,4,5 and other relevant IEC standards with latest amendments. All the shop tests shall be carried out by the manufacturers /approved sub vendor of employer at their works the details of tests are given in "Model Quality Assurance Plan" of Air insulated Switchgear.

1.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineering-in charge or his representative as per Approved Field Quality Plan. Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows:

All field tests shall be carried out under the supervision of Manufacturer.

Following field tests shall be performed:

- Visual inspection, checks and verifications,
- Mechanical operation tests of circuit breakers, disconnectors and earthing switches and high-speed earthing switches,
- Insulation resistance measurement,
- DC resistance measurement of the main circuit,

- Interlock test,
- Measurement of moisture content
- Manual operating check of circuit breakers, disconnectors and earthing switches,
- Test of auxiliary electrical, pneumatic and hydraulic devices.
- CT and PT testing
- High voltage tests on the main circuit on complete assembly.
- Power frequency test of auxiliary and control circuit (2 kV r.m.s for 1 minute),
- Partial discharge measurement test,
- Testing of online monitoring systems and verification and calibration of various sensors, Other tests not mentioned specifically but requiredby IEC and as suggested by Contractor and or Engineer-in-charge at site.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

2. BUS DUCT

2.1 Type Tests

The contractor is required to carry out following type tests as per International /National standards on one Unit of Main, Auxiliary, Delta & Tap off Bus Duct in presence of the Employer or representative of Employer:

- Temperature Rise Test
- Short Time Current Test
- Impulse Voltage Test

The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

2.2 Shop Tests

The Bus Duct, Lighting Arrestor and Voltage Transformer (LAVT) & Neutral Grounding Transformer (NGT) Cubicles and Current Transformers (CTs) shall be routinetested as per relevant IEC & IEEE with latest amendments. All shop tests shall be carried by the manufacturer /approved sub vendor of employer at their works: The Details of the tests are givenin "Model Quality Assurance Plan" of Bus Duct.

2.3 Field Tests

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineer-in-charge or his representative as per Approved Field Quality Plan. Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows:

The following tests shall be performed:

- Electrical tests of Instrument Transformers
- Dielectric & IR tests on LAVT and NGT Cubicle
- Dye penetration test on welding of Bus Duct Enclosure & Conductor Joints
- Resistance measurement of each phase
- Short time power frequency withstand test
- Measurement of bus duct losses
- Function Tests on Air Pressurization System

Any other tests deemed necessary, before commissioning of the unit

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

3. XLPE Cable

3.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on 400 kV XLPE Cable & its Accessories of each type of similar rating and shall submit the reports to the employer. The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

Following Type Tests shall be done:

Non- Electrical Type Test

- Mechanical Properties of Insulation (before & after ageing)
- Mechanical Properties of Over sheath (before & after ageing)
- Ageing Test on Complete Cable
- Hot Set Test for XLPE Insulation

Electrical Type Test

- Bending Test
- Tan δ measurement
- Heating Cycle Voltage Test
- HV & Partial Discharge Tests
    - At Ambient Temperature &
    - At High Temperature.
- Lightning Impulse Voltage Test
- Power frequency AC voltage withstand test
- IR measurement

3.2 Shop Test

The 400 KV XLPE Cable shall be tested as per relevant IEC with latest amendments. All the Shop Tests shall be carried out by the manufacturer /approved sub vendor of employer at their works

as per IEC: 62067. The details of tests are given in "Model Quality Assurance Plan" of 400 kV XLPE Cable.

3.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineer-in charge or his representative as per Approved Field Quality Plan .

Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows:

Before commissioning of complete system, all cabling system shall be checked as per cable schedule and complete report shall be prepared by Contractor and shall be submitted.

Field Test shall include:

- Cabling check,
- Continuity checking,
- IR Testing in accordance with the applicable codes and standards,
- AC Voltage Test of insulation with voltage of Uo for 24 hours,
- DC Voltage Test of over-sheath
- Resistance checking.
- Insulation Resistance measurement,
- Verification of phase order,
- HV Test
- Other tests as suggested by Contractor and or Engineer-in-charge at site.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

4. DC SYSTEMS

4.1 Type Tests

The contractor is required to carry out Type Test as per relevant IEC/ International Standards on one apparatus of each type and similar rating and shall submitted the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

Following items Type Test report shall be submitted:

- Battery chargers
- Batteries
- Inverters/UPS
- AC & DC distribution boards

4.2 Shop Tests

Routine test on Battery Chargers, Inverters, Distribution Board & Acceptance test on 220V Battery bankshall be performed as per relevant IEC with latest amendments. All shop tests shall be carried out the manufacturer /approved sub vendor of employer at their works: -

The Details of the tests are given in Model Quality Assurance Plan of DC Systems.

4.3 Field Tests

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineer-in-charge or his representative as per Approved Field Quality Plan.

Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows

The following tests shall be performed:

- Installation check of all components installed according to as-built drawings and engineering,
- Functional test of subsystems,
- Functional test of complete system,
- AC withstand voltage tests,
- Functional and operation tests,
- Measurement of the insulating resistance of batteries, power and control circuits against earth,
- Adjustment of protection equipment,
- Resistance measurement of all major circuits,
- Other tests as suggested by the Contractor.

Following acceptance tests, as applicable to the type of battery.

- Physical examination,
- Polarity and absence of short circuit,
- Testing of voltage uniformity,
- Ampere-hour capacity,
- Insulation resistance test.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

5. Outdoor Pot Yard Equipment

5.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

5.2 Shop Test

The Outdoor Pothead yard equipment such as Capacitance Voltage Transformers, Surge Arrestors, Wave Trap, Isolator, Insulator, Conductor etc. shall be routine tested as per relevant IEC with latest amendments. All the shop tests shall be carried out by the manufacturers /approved sub vendor of employer at their works.The details of tests are given in "Model Quality Assurance Plan" of Outdoor Pot Yard Equipment.

5.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineer-in-charge or his representative as per Approved Field Quality Plan.

Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows:

Following tests shall be performed after installation:

Test on CVT:

- Visual inspection,
    - Ratio test,
    - IR value test,
    - Measurement of secondary voltage at rated voltage.

- Test on LA:
    - Visual inspection,
    - Record of Leakage current and surge counter reading

Other tests not mentioned specifically but required by IEC and as suggested by Contractor and or Engineer-in-charge at site.

6. Control & Monitoring System

6.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

6.2 Shop Test

The equipment shall be routine tested, as per IEC and other international standards with latest amendments, at the works of the Contractor in the presence of Employer's representative. All programmable controllers shall be tested as per IEC 61131-2 and relevant test certificates shall be submitted by the Contractor. All shop tests be carried out by the manufacturers /approved sub vendor of employer at their works

-Test on Optical Fiber Cable shall be carried out as per IEC: 60793.

- The Contractor shall organize and execute a complete factory test of the system. The Contractor shall provide a plan of factory testing and inspections, with the name of the components, material standards, test standards, material test items, manufacturing processes and the item of final inspection and testing. Factory tests shall be to prove that the equipment is manufactured according to quality standard. The system shall be erected in his workshop in the engineered configuration. The details of tests are given in Model Quality Assurance Plan of Computerized Control & Monitoring (SCADA) System.

6.3 Field Test

All field tests including tests during installation, pre-commissioning commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineer-in-charge or his representative as per Approved Field Quality Plan .

Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in

advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows

Following tests shall be performed:

- Protocol type conformance test to validate the implementation of the communication protocols,
- Installation check of all components installed according to as-built drawings and engineering,
- Functional tests,
- Guarantee test of response times as specified.
- Tests for proving interoperability of all equipment connected to the
- control system,
- Tests for proving the redundancy / fault tolerant design of the control system as specified in the section "Redundancy",
- Tests to prove / simulate the operational effectiveness of emergency shutdown system,
- Complete testing of automatic and manual operation of units and all other systems.
- Complete functional testing of Control and monitoring of dam site equipment and real-time data acquisition data,
- Complete functional testing of Plant intranet and web pages for on-line display of plant parameters on Plant LAN computers,
- Testing the functioning of firewalls and other security provisions to prove the isolation of Process control from outside LAN / WAN unauthorized intrusions,

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

7. Protection System

7.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

7.2 Shop Test

All Relays shall be routine tested as per IEC: 60255 and British Standards 142 & 5992 and submit reports to Employer. All shop tests shall be carried out by the manufacturers /approved sub vendor of employer at their works

The details of tests are given in Model Quality Assurance Plan of Protection System.

7.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineer-in-charge or his representative as per Approved Field Quality Plan.

Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows

7.4 Tests during installation and pre commissioning

Following tests shall be performed by the Contractor:

- Ratio and polarity of CTs, CVTs and PTs,
- Correctness of interconnections between CTs, CVTs and PTs as well as CT groups and associated relays,
- Testing, calibration and adjustment of protection relays,

- Check of functional characteristics of each of the electrical protections,
- Check of tripping sequence,
- Check of orders issued by each of the protections with respect to the corresponding tripping sequence,
- The systematic testing of the operation of each chain forming the protection, the associated tripping sub-assembly, the links to the connected systems and all fault simulations by test kit for which the system is to react,
- The co-ordination of protection and relay setting,
- The testing of the protection system behaviour during failure of one of its components,
- The testing of the protection system behaviour in the event of failure of one of the connected systems to which it is connected,
- Analysis of information consistency and of alarms supplied by protection system.

7.5 Commissioning tests

Following tests shall be performed by the Contractor:

- The systematic testing of the operation of each chain forming the protection, the associated tripping sub-assembly, the links to the connected systems and all fault simulations by creating real fault for which the system is to react,
- The final co-ordination of protection and final relay setting,
- The testing of the protection system behaviour in the event of failure of one of the connected systems to which it is connected,
- Analysis of information consistency and of alarms supplied by protection system.

Checks shall be made after the protection systems have been commissioned to ensure that all connections and test links have been replaced and test leads removed, and relay setting has been done, as well as to confirm the integrity of the current transformer circuits. Where necessary, voltage readings shall be taken at the terminals on each relay to ensure that loop connections between the relays are complete.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing.

Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

8. Cabling System

8.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

Type test reports of the following items shall be submitted for acceptance with adequate details/drawings to establish equivalence with the offered type for:

- All type of cables, termination kits and accessories,
- Conduits, ducts, channels etc.,
- Cable trays and supports.

8.2 Shop Test

The Power & Control Cable and Cable Tray shall be acceptance & routine tested as per relevant IEC with latest amendments. Shop tests shall be carried out on Power & Control Cable at the manufacturer works /approved sub vendor of employer as per IEC: 60502, IS: 7098, IS: 1554 etc. DC cable supplied shall of copper conductoronly. The details of tests are given in "Model Quality Assurance Plan" of Cabling System.

8.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineer-in-charge or his representative as per Approved Field Quality Plan.

Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows

Before commissioning of complete system, all cabling system shall be checked as per cable schedule and complete report shall be prepared by Contractor and shall be submitted.

Field test shall include:

- Cabling checking,
- Continuity checking,
- Resistance checking.
- Insulation resistance measurement,
- Verification of phase order,
- HV test.
- Other tests as suggested by Contractor and or Engineer-in-charge at site.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

9. MV Switchgear & SST

9.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC / International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

9.2 Shop Test

The 11kV Switchgear & SAT shall be routine tested as per relevant IEC with latest amendments. All shop tests shall be carried out by the manufacturers /approved sub vendor of employer at their works. The details of tests are given in Model Quality Assurance Plan of MV Switchgear & Station Auxiliary Transformers (SATs).

9.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineer-in-charge or his representative as per Approved Field Quality Plan.

Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows

Following inspections/ tests shall be performed:

- Verification of interlocks: ensure that interlocks are correctly installed and that access is prevented to live portions of the system when interlocks are in place and that access is permitted when interlocks are removed
- Functional and operational tests
- Measurement of the Insulating Resistance of the different power and control circuits, including cables, instruments and apparatus, against earth

- Contact resistance measuring of all Circuit Breaker.

Tests on all Station Auxiliary Transformer

- Correct functioning of the various protection systems.
- Inspection of the insulation to earth of the various parts of the transformers.
- Phase order checking.
- Measurement of the winding resistance.
- Measurement of capacitance and tan.
- Ratio test.
- Measurement of the no load current
- Measurement of impedance at low voltage.
- Calibration and setting of WTI.
- Transformer operation at no load for 24 hours (voltage, no load current, temperature measurement and noise),
- Final IR values between windings and windings and earth,
- Measurement of the magnetizing current at Ur,
- Checking of Neutral Earthing & Shorting of unused CTs.
- Any other test as suggested by Contractor and or Engineer-in-charge at site.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

10. DG SET

10.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC/ International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested and test certificate (s) for relevant tests are accepted by the Employer. Moreover, Applicability of type test reports shall be governed as per the prevailing CEA norms.

10.2 Shop Tests

The DG Set Engine, Alternator & Panels shall be tested as per relevant IEC with latest amendments/International Standards/approved drawings. The Details of the tests are given in "Model Quality Assurance Plan" of DG Set.

10.3 Field Tests

All field tests including tests during installation, pre-commissioning, commissioning and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or his representative. Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance tests shall be submitted well in advance as per contractual provision before start of relevant testing, for approval of the Engineer-in-charge.

The following site tests have to be executed:

- Meggar test of insulation between windings, between each winding and ground, and between control circuit live parts and ground
- Resistance measuring of each winding
- Phase sequence test
- Measurement of temperature rise
- Load test at available load for 2 Hours
- Starting time test
- Different modes of operation
- Functional tests of all control circuits

- Functional test of all safety devices.
- Approval/ clearance of the complete installation shall be obtained by the contractor from CPCB/State pollution control board/ Local bodies/ Chief Controller of Explosives (CCOE)/ CEA/ other licensing authorities etc., as per applicability.

Fulfilment of Emission Standards for Diesel Engines (Engine Rating more than 0.8 MW (800 KW) notified by the Environment (Protection) Third Amendment Rules 2002, vide G.S.R. 489 (E), dated 9thJuly, 2002 or applicable revision

thereof shall be complied.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

11. Electrical Workshop Equipment

11.1 Type Test

The contractor is required to carry out all type tests as per relevant IEC/ International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested (Valid Type Test as per latest CEA Guidelines of MOP, GOI) and test certificate (S) subject to acceptance of employer.

11.2 Shop Test

All equipment/ devices of Electrical Workshop shall be routine tested as per relevant IEC with latest amendments. All shop tests shall be carried out by the manufacturers /approved sub vendor of employer at their works. The details of tests are given in "Model Quality Assurance Plan" of Electrical Workshop Equipment.

11.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning, field acceptance tests shall be conducted by the contractor, in presence of Engineer-in-charge or his representative as per Approved Field Quality Plan.

Procedure to be adopted for conducting the operational, commissioning, pre commissioning performance and field acceptance test including Field Quality Plan shall be submitted well in advance, at least six (6) months before start of relevant testing, for approval of the Engineer-in-charge. Performance and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or representative of the Engineer-in-charge as follows

Following test shall be performed:

- Functional checking of the items/ components of Electrical Workshop,
- Checking of Electrical Workshop as whole and individual item.
- Other test as suggested by the Contractor and/or the Engineer-in-charge at site.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing.

Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

12. ELECTRIC OVERHEAD TRAVELLING (EOT) CRANES

12.1 Type Test

The contractor is required to carry out all type tests as per relevant Indian/ International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested and test certificate (s) for relevant tests are accepted by the Employer. Moreover, Applicability of type test reports shall be governed as per the prevailing CEA norms.

12.2 Shop Tests

The crane shall be shop assembled as completely as possible and then operated and load tested in the shop for adequacy of design and suitability for reliable, safe and proper operation. Shop tests shall be carried out by the manufacturer at their works as per IS 3177 standard / International Standards with latest amendments/approved drawings: -

The Details of the tests are given in "Model Quality Assurance Plan" of EOT Crane.

12.3 Field Tests

All field tests including tests during installation, pre-commissioning, commissioning and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or his representative. Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance tests shall be submitted well in advance as per contractual provision before start of relevant testing, for approval of the Engineer-in-charge.

12.3.1 Tests during installation and pre commissioning

These shall include the following:

- Operational and functional tests of components, sub-assemblies, auxiliaries i.e. lubrication etc.
- Control logic field tests to prove control logic scheme for operation and interlocks of system components and controls, including annunciation and shutdown scheme shall be done in so far as practical.

- Calibration test - All instruments, sensors, switches, relays etc. shall be calibrated and adjusted after installation, wherever practical.
- Operational tests for verification of correct operation of protective relays and safety devices shall be conducted.
- Operational tests for drives for verification of correct operation of each and every component of the drives.
- Operational tests of all the crane motors.
- Deflection Test - The deflection test shall be carried out with test load of 100 % of rated load at rest and with the crab in central position. The measurement shall not be taken on the first application of load. Datum line for measuring the deflection should be obtained by placing the crab on the extreme end of the crane span with smaller hook approach.
- Load tests at 100% and 125% of rated load on each crane.
- Verification of crane clearance and lifts.
- Incremental movement of hoists/travels.
- Tandem operation.
- Any other checks/tests to ensure that requirements of the specifications are being met.

After installation and prior to putting the equipment into operation at least the following tests shall be made:

- Test to demonstrate operational capabilities of the equipment along with its associated auxiliaries, control and drive system as per the intended requirements.

12.3.2 Commissioning Tests

The following tests shall necessarily be conducted:

- Insulation resistance test & Earthing Test of complete crane.
- Operational test - Operational test with/without rated load in all hoisting/ travelling motions to check for any misalignment, improper adjustments, overheating and other possible defects. This shall also include operational test for limit switches correctness of circuits, interlocks, operation of protective devices, brakes etc.

12.3.3 Field Acceptance/Performance Testing

After commissioning of respective cranes, these shall remain in the Contractor's custody for erection activities till commissioning of last generating unit. The Contractor shall be responsible for proper operation and maintenance of EOT cranes during this period.

The Contractor shall make good any damages and do the capital maintenance at the time of commissioning of last unit. If nothing unusual has been observed after capital maintenance, the test service period of seven (7) days shall follow. During this test service period, the cranes must perform satisfactorily. The Contractor shall be responsible for the equipment during test service and also for the way it is operated. However, Employer's personnel shall operate the equipment under the Contractor's guidance during test service period.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

13. HVAC System

13.1 Type Test

The contractor is required to carry out all type tests as per relevant National/ International Standards on one apparatus of each type of similar rating and shall submit the reports to the Employer. The type test may not be mandatory if similar equipment has been type tested and test certificate (s) for relevant tests are accepted by the Employer. Moreover, Applicability of type test reports shall be governed as per the prevailing CEA norms.

13.2 Shop Test

The equipment's / components of HVAC System like Air Handling Unit including Fan / Blower & Motor, Air Conditioning Unit & Water-Cooled Chilling Unit including Compressor, Motor, Condenser & Evaporator, Pumps, Damper, Copper Coil, Heat Exchanger, Instrumentation, Valves, Piping, Control Panel etc. shall be routine tested as per relevant National / International Standards with latest amendments/approved drawings.

The details of tests are given in "Model Quality Assurance Plan" of HVAC System.

13.3 Field Test

All field tests including tests during installation, pre-commissioning, commissioning and field acceptance tests shall be conducted by the Contractor, in the presence of Engineer-in-charge or his representative. Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance tests shall be submitted well in advance as per contractual provision before start of relevant testing, for approval of the Engineer-in-charge.

The Following tests shall be conducted during commissioning:

- Dimensional check of Duct, Duct Sheet.
- Functional test of louver, Damper, Thermostat/Temperature Sensor.
- Pressure test or leakage test.
- Main Air Flow rate.
- Performance test of AHU, Package type Air Conditioner, Chiller Unit, Pump etc.
- R & HV Test on Control Panel.

- Vibration & Noise Level of AHU & Chiller Unit.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

14. Mechanical Workshop Equipment

14.1 Type Test

Not specified

14.2 Shop Test

The all equipment/ devices of Mechanical Workshop shall be routine tested as per relevant Indian/International Standard with latest amendments/approved drawing.

Verification of Make, Model & Specifications of all equipment/ devices of Mechanical Workshop shall be carried out as per Approved Data Sheet/Drawings.

The details of tests are given in "Model Quality Assurance Plan" of Mechanical Workshop Equipments.

14.3 Field Test

All field test including tests during installation, pre-commissioning, commissioning and field acceptance tests shall be conducted by the contractor, in presence of Engineer-in-charge or his representative. Procedure to be adopted for conducting the operational, pre-commissioning, commissioning, performance and field acceptance tests shall be submitted well in advance as per contractual provision before start of relevant testing, for approval of the Engineer-in-charge.

- Functional test of each equipment to prove suitability.

Note-Above Field tests are mentioned for reference. However, field test shall be applicable as per contractual agreement /GTS/PTS /Relevant standard/Approved Design & Drawing. Moreover, any other tests as suggested by Engineer-in-Charge at site as per Relevant Standard shall also become part of above Field test.

Annexure B - Bill of Quantity

(The mentioned BOQ is tentative, exact requirement shall be taken care during detailed engineering)

Part-1: 400 kV GIS Madhogarh Pooling Substation

Sl. No	Item	Unit	Quantity
Supply, Construction, Erection, testing & commissioning of the following equipment/System			
1)	250 MVA, 400/33/33kV, three phase, three winding, ONAN/ONAF/OFAF, YNyn0yn0, OLTC Power Transformer bushing CTs, first fill oil, tools & tackles and all accessories required as per technical specification of **Section B Clause- I**	Sets	3
2)	400kV Gas insulated equipment for Factory assembled, metal-enclosed, SF6 GIS bay including GIB and relevant support structures with associated Breaker with CSD, CT, Disconnecting Switch & EMVT and other required accessories etc. for all Bay as per technical specification of **Section B Clause-II & III**	Sets	6
3)	Electric Overhead Traveling crane (EOT), tools & tackles and all accessories required as per technical specification **Section B Clause -II**	Set	1
4)	400kV Single Phase Surge Arrester (For Line Feeder- 6 Nos, For Transformer Feeder - 09 Nos), tools & tackles and all accessories required as per technical specification of **Section B Clause- IV**	Nos	15
5)	400kV Control and relay panel (CRP) and all accessories required as per the technical specification of **Section B clause- V**	Lot	1
6)	400kV Substation automation system (SAS) and all accessories required as per technical specification of **Section B clause- VI**	Lot	1
7)	Common Tariff metering panel with all standby meters for 400 KV system including provision of spare meters (Number of panels will be as per requirement) as per technical specification of **Section B Clause-VII**	Lot	1
8)	FOTE and all accessories required as per technical specification of **Section B Clause- VIII**	Lot	1
9)	400kV CVT, tools & tackles and all accessories required as per technical specification of **Section B Clause- IX**	Sets	2
10)	33kV Segregated Phase Busduct and all accessories required as per technical specification of **Section B Clause- X**	Sets	6
11)	33kV Switchgears and Accessories and all accessories required as per technical specification of **Section B clause- XI**	Sets	6
12)	3-phase, 33kV Dynamic reactive power compensating Equipment **(+/-28 MVAr**) and all accessories required as per technical specification of **Section-B Clause-XII**	Nos	2

13)	3-Phase, 33kV Capacitor Bank (**28 MVAr**) equipment and all accessories required as per technical specification of **Section-B Clause-XIII**	Nos	4
14)	33kV PEB and all accessories required as per technical specification of **Section-B Clause- XIV**	Lot	3
15)	33/0.433 kV, Oil filled, Outdoor type station service transformers (Capacity in tentative shall be finalized during detail engineering and may increase which contractor cannot put claim on Customer/Client), tools & tackles and all accessories required as per technical specification of **Section B Clause- XV**	Sets	2
16)	415V LT Switchboard and all accessories required as per technical specification of **Section B Clause- XVI**	Lot	1
17)	220V DC System and all accessories required as per technical specification of **Section B Clause- XVII**	Lot	1
18)	230V AC UPS system and all accessories required as per technical specification of **Section B Clause- XVIII**	Lot	1
19)	Power and Control cable and all accessories required as per technical specification of **Section B Clause- XIX**	Lot	1
20)	415V, 750 kVA DG set with acoustic enclosure: Continuous running duty. (however, the actual size shall be calculated based on design criteria of DG set in technical specification & detail engineering by vendor, no extra cost to Owner) and all accessories required as per technical specification of **Section B Clause- XX**	Nos	1
21)	Earthing & Lightning Protection system and all accessories required as per technical specification of **Section B Clause- XXI**	Lot	1
22)	Illumination system completes with, Lighting DB, Lighting Panel, LED lighting fixtures, lighting poles, high mast lighting, switch boxes, single phase receptacles, three phase welding receptacles, conduits, wires, poles, earthing wires, etc, and all accessories required as per technical specification of **Section B Clause- XXII**	Lot	1
23)	Miscellaneous items as per technical specification of **Section B Clause- XXIII**	Lot	1
24)	Erection and Commissioning Cost/Installation and all accessories required as per technical specification of **Section-B clause- XXIV**	Lot	1
25)	Air Conditioning & Ventilation System and all accessories required as per technical specification of **Section B Clause- XXV**	Lot	1
26)	Weather Monitoring system and all tools & tackles and all accessories required as per technical specification of **Section B Clause- XXVI**	Lot	1
27)	Fire Detection and Alarm System/Fire protection system and all accessories required as per technical specification of **Section-B clause- XXVII**	Lot	1
28)	Civil and Structural Construction Cost as per technical specification of **Section-B clause-XXVIII**	Lot	1

29)	400kV Switchyard Structures (Gantry and other equipment including Foundation) tools & tackles and all accessories required as per technical specification of **Section-B clause-XXVIII**	Lot	1
30)	Main Control Room Building required as per technical specification of **Section-B clause-XXVIII**	Lot	1
31)	Civil Works (Drains, Roads, Fencing, Gravel work, Land development) required as per technical specification of **Section-B clause-XXVIII**	Lot	1
32)	Unified Control and Monitoring System (UCMS), tools and tackles all accessories as per technical specification of **Section-B clause-XXIX**	Lot	1
33)	Phasor Measurement unit (PMU) at 400kV bay and all accessories required as per technical specification of **Section B clause- XXX**	Set	1
34)	Power Quality meter (PQM) at 400kV bay and all accessories required as per technical specification of **Section B clause- XXXI**	set	1
35)	Fiber Optic cables and all accessories required as per technical specification of **Section B Clause- XXXII**	Lot	1
36)	Surveillance and Access Control Systems and all accessories as per technical specification of **Section-B clause-XXXIII**	Lot	1
37)	IT infra - Data communication and workstations and all accessories as per technical specification of **Section-B clause-XXXIV**	Lot	1
38)	Bay Extension works at Orai PGCIL S/s tools and tackles and all accessories as per General technical specification of **Section A clause- V & VII**	Lot	1

The equipment, which is not listed in the Bill of Quantities but required for complete, successful operation of plant, also shall be in the scope of contractor.

Part-2: 400 kV AIS Orai and 400 kV AIS Pathrahi Pooling Substation

Part-A: Tentative BOQ for 400 kV AIS Orai Pooling Substation

SI.NO	Description	UoM	Quantity
1)	340 MVA, 400/33/33kV, three phase, three winding, ONAN/ONAF/OFAF, YNyn0yn0, OLTC Power Transformer bushing CTs, first fill oil, tools & tackles and all accessories required as per technical specification of **Section-B clause- I**	Nos	1
2)	400kV, 2500 A, 63kA for 1 Sec rated SF6 3 poles, gang operated circuit breaker with supporting structure & other tools & tackles and all accessories required as per technical specification of **Section-B clause- II**	Nos	5
3)	400 kV, two core, Ratio :2000-2500/1A,63kA/1sec-To Tariff Meter 400 kV, six core, Ratio :2000-2500/1A,63kA/1sec-to Main protection, control and general metering other tools & tackles and all accessories required as per technical specification of **Section-B clause- III**	Nos	7
4)	400kV Single phase oil filled capacitive voltage transformer – Outdoor Equipment (AIS) for Tariff metering & protection and other tools & tackles and all accessories required as per technical specification of **Section-B clause- IV**	Nos	2
5)	(400kV, 2500 A rated, 63kA for 1 Sec, 3 pole horizontal double break center post rotating, outdoor air break motorized with Single earth switch) 400kV, 2500 A rated, 63kA for 1 Sec, 3 pole horizontal double break centre post rotating, outdoor air break motorized isolator with double earth switch Disconnector with earth switch and other tools & tackles and all accessories required as per technical specification of **Section-B clause- V**	Nos	15

SI.NO	Description	UoM	Quantity
6)	Busbar and associated items and other tools & tackles and all accessories required as per technical specification of **Section-B clause- VI**	Lot	2
7)	400 KV, 1 phase surge arrester – Outdoor Equipment (AIS) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- VII** a) For line feeder -6 b) For transformer feeder-3	Nos	9
8)	Earthing & Lightning Protection system tools & tackles and all accessories required as per technical specification of **Section-B clause- VIII**	Lot	1
9)	Illumination system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- IX**	Lot	1
10)	LT Switch board and other tools & tackles and all accessories required as per technical specification of **Section-B clause- X**	Lot	1
11)	DC System and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XI**	Lot	1
12)	3-phase, 33kV Fixed Capacitor Bank (24 MVAr) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XII**	Nos	**2**
13)	Power and Control cable and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIII**	Lot	1
14)	230V AC UPS system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIV**	Lot	1

SI.NO	Description	UoM	Quantity
15)	Civil and Structural Construction Cost and other tools & tackles and all accessories required as per technical specification **of Section-B clause- XV**	Lot	1
16)	400kV Switchyard Structures (Gantry and other equipment including Foundation) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
17)	Main Control Room Building and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
18)	Civil Works (Drains, Roads, Fencing, Gravel work, Land development) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
19)	Water infrastructure and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
20)	33kV PEB and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XVI**	Lot	2
21)	33kV Switchgears and Accessories and other tools & tackles required as per technical specification of **Section-B clause- XVII**	Nos	2
22)	33kV Segregated Phase Busduct and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XVIII**	Set	2
23)	Unified control and monitoring system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIX**	Lot	1

SI.NO	Description	UoM	Quantity
24)	Communication cable and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XX**	Lot	1
25)	Station Service Transformer(500kVA) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXI**	Nos	2
26)	HVAC and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXII**	Lot	1
27)	Fire Detection and Alarm System and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIII**	Lot	1
28)	Tariff metering panel and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIV**	No.s	2
29)	Power quality meter (PQM) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXV**	Nos	1
30)	Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVI**	Set	1
31)	Fiber optic test equipment (FOTE) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVII**	Lot	1
32)	400kV SAS and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVIII**	Lot	1
33)	400kV CRP and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIX**	Lot	1

Sl.NO	Description	UoM	Quantity
34)	Spare, maintenance, Tools and tackles and Miscellaneous items as per the technical requirement of **Section-B clause- XXX & clause- XXXI**	Lot	1
35)	Surveillance and Access Control System as per the technical requirement of **Section-B clause- XXXII**	Lot	1
36)	Weather Monitoring System and Tools and tackles) as per the technical requirement of **Section-B clause- XXXIII**	Lot	1

The equipment, which is not listed in the Bill of Quantities but required for complete, successful operation of plant, also shall be in the scope of contractor.

Part -B: Tentative BOQ for 400 kV AIS Pathrahi Pooling Substation

Sr. No	Description	UoM	Quantity
1)	340 MVA, 400/33/33kV, three phase, three winding, ONAN/ONAF/OFAF, YNyn0yn0, OLTC Power Transformer bushing CTs, first fill oil, tools & tackles and all accessories required as per technical specification of **Section-B clause- I**	Nos	1
2)	400kV, 2500 A, 63kA for 1 Sec rated SF6 3 poles, gang operated circuit breaker with supporting structure & other tools & tackles and all accessories required as per technical specification of **Section-B clause- II**	Nos	1
3)	400 kV, two core, Ratio :2000-2500/1A,63kA/1sec-To Tariff Meter 400 kV, six core, Ratio :2000-2500/1A,63kA/1sec-to Main protection, control and general metering other tools & tackles and all accessories required as per technical specification of **Section-B clause- III**	Nos	1
4)	400kV Single phase oil filled capacitive voltage transformer – Outdoor Equipment (AIS) for Tariff metering & protection and other tools & tackles and all accessories required as per technical specification of **Section-B clause- IV**	Nos	1
5)	Disconnector with earth switch and other tools & tackles and all accessories required as per technical specification of **Section-B clause- V** (400kV, 2500 A rated, 63kA for 1 Sec, 3 pole horizontal double break centre post rotating, outdoor air break motorized with Single earth switch) 400kV, 2500 A rated, 63kA for 1 Sec, 3 pole horizontal double break centre post rotating, outdoor air break motorized isolator with double earth switch	No. s	2
6)	Busbar and associated items and other tools & tackles and all accessories required as per technical specification of **Section-B clause- VI**	Lot	2
7)	400 KV, 1 phase surge arrester – Outdoor Equipment (AIS) and other tools & tackles and all accessories required as per technical specification of	Nos	2

Sr. No	Description	UoM	Quantity
	Section-B clause- VII a) For line feeder -6 b) For transformer feeder-3		
8)	Earthing & Lightning Protection system tools & tackles and all accessories required as per technical specification of **Section-B clause- VIII**	Lot	1
9)	Illumination system and other tools & tackles and all accessories required as per technical specification of S**ection-B clause- IX**	Lot	1
10)	LT Switch board and other tools & tackles and all accessories required as per technical specification of **Section-B clause- X**	Lot	1
11)	DC System and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XI**	Lot	1
12)	3-Phase, 33kV Fixed Capacitor Bank (24 MVAr) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XII**	Nos	**2**
13)	Power and Control cable and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIII**	Lot	1
14)	230V AC UPS system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIV**	Lot	1
15)	Civil and Structural Construction Cost and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
16)	400kV Switchyard Structures (Gantry and other equipment including Foundation) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
17)	Main Control Room Building and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1

Sr. No	Description	UoM	Quantity
18)	Civil Works (Drains, Roads, Fencing, Gravel work, Land development) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
19)	Water infrastructure and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XV**	Lot	1
20)	33kV PEB and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XVI**	Lot	2
21)	33kV Switchgears and Accessories and other tools & tackles required as per technical specification of **Section-B clause- XVII**	Nos	2
22)	33kV Segregated Phase Busduct and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XVIII**	Set	2
23)	Unified control and monitoring system and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XIX**	Lot	1
24)	Communication cable and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XX**	Lot	1
25)	Station Service Transformer(500kVA) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXI**	Nos	2
26)	HVAC and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXII**	Lot	1
27)	Fire Detection and Alarm System and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIII**	Lot	1
28)	Tariff metering panel and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIV**	Nos	2

Sr. No	Description	UoM	Quantity
29)	Power quality meter (PQM) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXV**	Nos	1
30)	Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVI**	Set	1
31)	Fiber optic test equipment (FOTE) and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVII**	Lot	1
32)	400kV SAS and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXVIII**	Lot	1
33)	400kV CRP and other tools & tackles and all accessories required as per technical specification of **Section-B clause- XXIX**	Lot	1
34)	Spare, maintenance, Tools and tackles and miscellaneous items as per the technical requirement of **Section-B clause- XXX and clause- XXXI**	Lot	1
35)	Surveillance and Access Control System as per the technical requirement of **Section-B clause- XXXII**	Lot	1
36)	Weather Monitoring System and tools & tackles and all accessories required as per technical specification of **Section-B clause- XXXIII**	Lot	1

The equipment, which is not listed in the Bill of Quantities but required for complete, successful operation of plant, also shall be in the scope of contractor.

Replies to Pre-Bid Clarification

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
1	VolumeV Forma and Procedure	Attachment 1 (EMD BG Format)	KNOW ALL PERSONS by these present that WE [name of bank] of [address of bank] (hereinafter called “the Bank”), are bound unto [name of Employer] (hereinafter called “the Employer”) in the sum of: [amount], for which payment well and truly to be made to the said Employer, the Bank binds itself, its successors and assigns by these presents.	**We understand that the beneficiary is NHPC Ltd.; therefore, the term “Employer” in the EMD BG format should refer to NHPC Ltd., rather than the entity defined as “Employer” under ITB Clause No. 1 (i.e., BSUL).** **Kindly confirm and clarify this interpretation.**	The beneficiary is NHPC Limited for EMD submission.
2		ITB Clause No.2.2.7	If the Bidder Company is a Subsidiary Company and applies for qualification on the unconditional technical and financial strength of the Parent/ Holding Company, the same shall be considered provided the Parent/Holding Company commits to sign a Separate Agreement with NHPC Limited/Employer (as per Proforma enclosed at Form 14 of Vol. V Forms and Procedures, as the case may be) with NHPC Limited confirming full support for the General, Specific and Financial requirements of the Subsidiary Company and commits to take up the works itself in case of non performance by the Subsidiary Company in the event of award of the works to the Bidder Subsidiary Company.	We understant that bidder can meet the qualification requirement under clause ITB clause 2.2.4 on the strength of Parent/Holding company. Please clarify our understanding is correct.	Bid condition is clear
3	Volume IIB_SCC	ITB Clause No.6.4	The Bidder is requested to submit questions/queries in writing or bye-mail to reach the Employer Tender Inviting Authority at the address given below, not later than seven (7) days before the prebid conference.	**Since the vendors’ offers for major equipment are awaited, we understand that the pre-bid queries will be addressed subsequently.**	Bid condition is clear
4	Volume IIB_SCC	ITB Clause No.37.1(a)	If the discovered price is up to 105% of the estimated price, no e-RA will be conducted.	In the event (tie bid) that two bidders quote identical prices within 105% of the estimated cost, whether an e-Reverse Auction (e-RA) will be conducted? Kindly clarify.	Bid condition is clear
5		GCC Clause 30.1 (b)	**any obligation of the Contractor to indemnify the Employer with respect to patent infringement**	**However, GCC Cl. 29.1 covers a broader basket of IP including utility models, registered designs, trademarks, copyright and "other intellectual property right".** **Please confirm that the carve-out from the 100% Contract Price aggregate cap is strictly limited to patent infringement (as per the literal text of Cl. 30.1(b)) and that all other IP indemnities under GCC Cl. 29.1 remain within the aggregate cap**	Bid condition is clear
6		SCC Clause 3.0	If the Contractor fails to perform the work within the time specified in the contract or any extension thereof the Company shall recover from the Contractor as liquidated damages a sum of zero-point five percent (0.5%) of the total contract price plus applicable GST for each completed week of delay. However, the total liquidated damages shall not exceed 10% of the total contract value plus applicable GST.	As the works under this contract are to be executed at four different locations (on a PSS basis), it is requested that provision for phase-wise (PSS) commissioning be incorporated. Accordingly, Liquidated Damages (LD) should be levied only on the delayed portion of the works, rather than on the project as a whole.	Bid condition shall prevail
7		SCC Clause 9.0	ESCROW MECHANISM	SCC Cl. 9.0 mandates routing of all payments through Escrow Account, however the Form & Procedures (Volume V) does not provide for any procedure and/ or format for the same	Bid condition is clear
8		ITB Clause 2.2.7 read with Form -16	In case Bidder Company (Subsidiary Company) gets qualified and awarded the work package, the Bidder Company (Subsidiary Company) will be required to furnish an additional performance bank guarantee of value equivalent to 5 (five) percent of the Contract Price or portion of work (Where the Subsidiary Company is Joint Venture Partner) as the case may be (as per Proforma enclosed at Form-16 of Vol. V Forms & Procedures),	The bidder proposes to qualify on the strength of its Holding Company. The validity period of the Additional 5% PBG under Form-16 is not expressly specified in the tender documents. Please confirm the validity period of the Additional PBG	Bid condition is clear
9		GCC Clause 14.4/36.1	direct transactions between the Employer and the Contractor" and exclude "procurement of raw materials, intermediary component	Change-in-law adjustments are restricted to "direct transactions between the Employer and the Contractor" and exclude "procurement of raw materials, intermediary components" by the Contractor. Request to cover all GST / customs / cess / levy changes on raw materials and bought-out components which directly impact Contract Price, since the Contractor has no commercial control over upstream tax changes.	Bid condition is clear
10		ITB Clause 2.2.7	If the Bidder Company is a Subsidiary Company and applies for qualification on the unconditional technical and financial strength of the Parent/ Holding Company, the same shall be considered provided the Parent/Holding Company commits to sign a Separate Agreement with NHPC Limited/Employer (as per Proforma enclosed at Form 14 of Vol. V Forms and Procedures, as the case may be) with NHPC Limited confirming full support for the General, Specific and Financial requirements of the Subsidiary Company and commits to take up the works itself in case of non performance by the Subsidiary Company in the event of award of the works to the Bidder Subsidiary Company	The bidder is to qualify on the strength of its Holding Company under ITB Cl. 2.2.7. In case the bidder is relying on the Holding Company for any of the mentioned qualification criteria (General Experience under ITB Cl. 2.2.1, Specific Technical Experience under ITB Cl. 2.2.2, Financial Criteria under ITB Cl. 2.2.3 and Bid Capacity under ITB Cl. 2.2.4), then will the remaining criteria be also evaluated on the strength of the Holding Company alone, without requiring the Subsidiary/Bidder to independently meet any of these thresholds	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
11		SCC Clause 32.0	Defect Liability Period: Defect Liability period shall be 24 months after Taking over the facilities by BSU	SCC Cl. 32.0 provides DLP of 24 months "after Taking over the facilities by BSUL. Further, SCC Cl. 5.0(e) refers to a "mutual accepted date" on which O&M commences post 14-day Owner certification. Please clarify the precise event from which the 24-month DLP commences.	Bid condition is clear
12		GCC Clause 37.1	Force Majeur	GCC Cl. 37.1 lists specific Force Majeure events but does not expressly include (i) delay or failure of utility shutdown / outage approvals by PGCIL for the Orai Bay Extension works; (ii) non-availability of land or right-of way despite Employer's responsibility under GCC Cl. 10.2. Please clarify whether these events are covered under GCC Cl. 37.1 or treated as relief events under GCC Cl. 40.1.	Bid condition shall prevail
13		SCC Clause 1.1(a)		The scope under SCC Cl. 1.1(a) includes "400 kV Bay Extension works at Orai PGCIL S/s". Please clarify (i) whether PGCIL's in-principle approval / NOC for the Bay Extension works has been obtained by BSUL; (ii) the agency responsible for securing shutdown / outage windows from PGCIL; and (iii) whether delays attributable to PGCIL qualify as Employer attributable delays under GCC Cl. 40.1(e).	1. Connectivity has been obtained at PGCIL Orai GIS Substation and bid condition is clear for other queries
14	Volume – II B, SPECIAL CONDITIONS OF CONTRACT-Clause no. 4.0	CONTRACT PERFORMANCE BANK GUARANTEE FOR OPERATION AND MAINTENANCE	CONTRACT PERFORMANCE BANK GUARANTEE FOR OPERATION AND MAINTENANCE	As this provision has been deleted in the tender document, kindly clarify whether this requirement is applicable to the subject tender or not.	Please refer corrigendum-2
15	ATTACHMENT –11	Site Visit Report	CERTIFICATION OF THE SITE VISIT BY THE BIDDER IN THEIR OWN FORMAT	Please clarify whether submission of the site visit report is mandatory for bidders who have not conducted a site visit.	Bid condition is clear
16		Section-2, Pg-2 (GTS Project Introduction) & SCC Cl. 2	Section-2 (GTS): "…both Phase-1 and Phase-2 shall commence simultaneously on the same timeline, and all activities under both phases shall be executed in parallel to ensure the entire project is commissioned within the stipulated duration of 18 months." SCC Cl. 2: Completion period stated as 24 months (also expressed as 730 days incl. monsoon season from date of LOI in the Madhogarh PSS scope	The completion period is stated as 18 months in the GTS (Section-2, Pg-2) and as 24 months/730 days in the SCC (Cl. 2) and in the Madhogarh PSS scope clause. Please clarify which period is contractually binding and confirm the correct Completion Period.	SCC clause 2 shall prevail
17		SCC Cl. 2 — Completion Period	As specified in SCC Clause No. 2 — Completion Period: 24 months from date of LOI.	All qualified 400 kV power transformer manufacturers are reported to have their production capacities fully booked for the next 2 years. Given that the work is structured in two phases (Phase-1: Madhogarh PSS; Phase-2: Orai and Pathrahi PSS), we request you to consider extending the completion period to 30 months from date of LOI for Phase-1 and 36 months from date of LOI for Phase-2, to allow realistic transformer procurement and parallel multi-site execution.	Bid conditions shall prevail
18		Vol-5, Appendix 1 — Terms and Procedure of Payments; GCC Cl. 13 (Advance Payment)	An interest-bearing mobilisation advance of 10% of the order value shall be released against submission of a Bank Guarantee for 110% of the mobilisation advance amount, to be recovered as per GCC clauses.	Other central PSUs such as NTPC provide an interest-free mobilisation advance in their EPC contracts. We request that the mobilisation advance be enhanced to 15% of the order value and provided on an interest-free basis against submission of an equivalent Bank Guarantee. An interest-free advance will significantly improve contractor cash flow, resulting in more competitive bid pricing for this package.	Bid conditions shall prevail
19		SCC Cl. 3.1 & Cl. 4.0	Cl. 3.1 is captioned "LIQUIDATED DAMAGES FOR COMPLETION OF O&M: **Deleted"** but is immediately followed by an active LD provision: 0.25% of O&M contract value per week, subject to a maximum of 10% of O&M Contract Value. Similarly, Cl. 4.0 "CONTRACT PERFORMANCE BANK GUARANTEE FOR OPERATION AND MAINTENANCE: **Deleted"** is followed by an active requirement for a 10% CPBG valid for 36 months (the O&M contract period), to be submitted within 30 days of LOI.	Please clarify whether the O&M related LD under Cl. 3.1 and the CPBG under Cl. 4.0 stand deleted as captioned	Bid conditions shall prevail

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
20		SCC Cl. 34.0 — Quantity Variation	SCC Cl. 34.0 states: "The contractor shall not be entitled to claim deviation in quantity up to ±5% of the quantity specified in BOQ for Transmission Line. The payment of deviated quantity beyond ±5% from the BOQ for Transmission Line shall be paid/recovered on pro-rata basis by the Employer on prudence check, if any." The present BOQ contains no Transmission Line scope or quantities — only three pooling substations and a GIS bay extension at CTUIL	Please clarify the applicability of this Transmission Line quantity variation clause to the present contract, which has no transmission line scope. If this clause is not applicable, please confirm the quantity variation terms applicable to the substation equipment and civil works in this package	Please refer corrigendum-2
21		Appendix 2 — Price Adjustment (Price Variation Base Date) vs. SCC Cl. 35.0	Appendix 2 (Price Adjustment formula) defines the 'Base Date' as 28 days prior to the due date of submission of bid — i.e. the base indices are fixed at bid stage. SCC Cl. 35.0 separately states that Price Variation shall be calculated from: (a) the date of placement of order (LOA), or (b) 4 months after the published date of opening of the Techno-Commercial bid (including any extensions) — whichever is earlier.	Please clarify the relationship between these two provisions: (a) Appendix 2 governs the base indices (fixed 28 days before bid closing) and the mid-point adjustment mechanism. (b) SCC Cl. 35.0 appears to define a separate PV 'start trigger' (from LOA or 4 months after bid opening), which would mean no PV is payable for work executed before that trigger date. Please confirm whether PV is payable from the date of LOA (or 4 months after bid opening, whichever is earlier) and clarify which document controls the base date and the commencement of PV entitlement	Please refer corrigendum-2
22		2.2.1 of NIT	GENERAL EXPERIENCE: ……. For such works with payment received in other than INR shall be converted in INR by adopting the Exchange rate between that Currency and INR as prevailing on the completion date mentioned in the completion certificate and if month of completion is mentioned in the Completion Certificate, then the exchange rate of last working day of the Month shall be taken. The value of work in INR or converted into INR as above from the currency other than INR shall be enhanced by 7% simple rate per annum up to the date of Bid Opening. In support of above, bidder should provide notarized copy of Supply order/ LOA/ Contract Agreement along with completion certificate/ substantial completion certificate issued by Employer/ Owner.	Clarification Required on Evaluation Methodology under Clause 2.2.1 (General Experience): With reference to Clause 2.2.1 of the NIT, which mentions consideration of “payment received” along with submission of completion/substantialcompletion certificates, we seek clarification on the methodology to be adopted for evaluation of completed works. Specifically, it is unclear whether the evaluation shall be based on: (a) the total value of work executed/completed, as certified by the Employer/Owner; or (b) the actual payment received against such executed work. Illustration for Clarification: To explain the ambiguity: A bidder has an original contract value of INR 200 Crore, which is subsequently amended and executed for INR 210 Crore. The bidder has completed the entire scope of work and has raised invoices for the full amount of INR 210 Crore, duly supported by a completion certificate issued by the Employer confirming successful completion of the entire work. However, as per contractual payment terms, the bidder has received payments amounting to INR 140 Crore as on the last day of the month preceding the month of bid invitation. Clarification Sought: In the above scenario, kindly confirm which value shall be considered for evaluation under Clause 2.2.1: Case (i): INR 210 Crore — value of work executed and certified as fully completed (100%); or Case (ii): INR 140 Crore — actual payment received (approximately 66%). This clarification is critical, as the interpretation directly impacts compliance with eligibility criteria, including determination of 100% completion and/or substantial completion (80%) thresholds. Further, in cases where only substantial completion (e.g., 80%) is certified in a similar manner, we request clarification on the methodology that will be applied for evaluation. We request the Employer to kindly confirm the applicable basis of evaluation to ensure clarity and enable bidders to prepare and submit compliant bids.	Bid condition is clear
23		2.2.4 of NIT	The available Bid capacity of the Bidder at the time of submission of Price bid,calculated as under should not be less than INR 379.25 Crores. Available Bid capacity = (2.0 x A x N) - B Where; A= Indexed value of Maximum value of Works executed (in an ongoing or completed project) in any one year during last 5 (five) years, keeping index of inflation as 6% (compounded annually) for calculating ‘A’ at present price level. N = Number of years prescribed for completion of the subject contract package i.e., 24/12= 2 years. B = Value of existing commitments (as on last date of bid submission) and on-going works to be completed in next "N" years.The bid capacity shall be assessed at the time of submission of Bid and should not be less than the estimated cost of the work	Since the scope of work pertains to an EHV Substation, we understand that: The Value of "A" (i.e.A= Indexed value of Maximum value of Works executed (in an ongoing or completed project) in any one year during last 5 (five) years, keeping index of inflation as 6% (compounded annually) for calculating ‘A’ at present price level) and The Value of "B" (i.e. Value of existing commitments (as on last date of bid submission) and on-going works to be completed in next "N" years) shall be considered exclusively for contracts related to Power Transmission & Distribution (T&D) projects. This interpretation is in line with the standard practices generally followed by PGCIL and other State Transmission Utilities. Please confirm our understanding.	Bid condition is clear
24		Payment	ESCROW Account	We understand its not mandatory to open the ESCROW Account for this project	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
25		NIT /ITB Clause 2.2.5 & 2.2.6	i) JOINT VENTURE BIDDERS: Deleted ii) JOINT VENTURE BIDDERS/ BIDDERS WITH SUB-CONTARCTORS: Deleted	Requetsed to amend/reverse Clause 2.2.5 & 2.2.6 of NIT/ITB to permit participation by Joint Venture(JV)	Bid Condition shall prevail.
26		NIT /ITB Clause 2.2.3	Financial Criteria: The bidder should have Minimum average annual turnover of INR 200.87 Crores for the immediately preceding two (02) consecutive financial years	The bidder should have minimum average annual turnover of INR 200.87 Crores considering the best two (02) fincial years out of the last five (05) financial years.	Bid Condition shall prevail.
27		ITB Clause 2.2.3	**Financial Criteria** **(i) Turnover:** The bidder should have Minimum average annual turnover of **INR 200.87 Crores** for the immediately preceding two (02) consecutive financial years.	**Financial Criteria** **(i) Turnover:** The bidder must have Minimum average annual turnover of **INR 100.00 Crores** for the immediately preceding two (02) consecutive financial years	Bid condition shall prevail
28		ITB Clause 2.2.5	**JOINT VENTURE BIDDERS: DELETED**	**The bidders must have request for Consideration of Joint Venture (JV) Participation Permissible with maximum of two Partners.**	Bid condition shall prevail
29		ITB Clause 2.2.6	**JOINT VENTURE BIDDERS/ BIDDERS WITH SUB-CONTARCTORS: DELETED** Only **sole bidder(s)** at their own capacity/ capability be allowed for participation in the tender for subject work.	**JOINT VENTURE BIDDERS/ BIDDERS WITH SUB-CONTARCTORS:** Bidders can participate in Joint Venture and anyone can be Lead Bidder.	Bid condition shall prevail
30		**Tender Extension**	The tender submission date may please be extended, as we are awaiting vendors' techno-commercial offers and PQR documents required for bid finalization.		Bid condition shall prevail
31		**Transformer**	We requested that the project completion period be extended from 24 months to 30 months, considering that the transformer delivery period is 30 months as per the applicable MoP and CEA guidelines.		Bid condition shall prevail
32	ESCROW MECHANISM	SCC 9.0 & 254		Please confirm our understanding that the establishment of an ESCROW Account is not a mandatory requirement for this project.	Bid condition is clear
33	LD	SCC 3.0 & 251		**Tender Requirement given as belows:** 0.5% of the Contract Price for each completed week of delay.The amount of LD applicable will be up to a maximum of 10% of the Contract Price. **Bidder proposes the below changes:** 0.5 % of the unexecuted work for each week or part there of delay until the actual date of completion up to a maximum deduction of 5% of unexecuted work	Bid condition shall prevail
34	Site Visit Report	Attachment-1		Request clarification on whether a Site Visit Report must be submitted by bidders.	Bid condition is clear
35	O&M	SCC 5.0 (E) & 252		Kindly Clarify the scope of O&M	Please refer Corrigenedum-2
36	Extension of Project Completion Period	-		Considering the prevailing industry-wide transformer supply constraints and the current manufacturing lead time of around 28 months for power transformers, bidders foresee a significant challenge in meeting the stipulated project completion period of 24 months. Therefore, it is requested that the Project Completion Period be revised **from 24 months to 30 months**	Bid condition shall prevail
37	Extension of Bid Submission Date	-		Considering the requirement for detailed techno-commercial evaluation, vendor consultations, and obtaining firm quotations for major equipment, bidders request an extension of the bid submission deadline by **25–30 days** to enable submission of a more comprehensive and competitive offer.	Bid condition shall prevail
38	General	-		Please clarify whether BOCW is applibale for service contract or total contract price.	Bid condition is clear
39	General	-		We undersatnd that for completion of project if any material other than available in BOQ will be required, the payment of the extra materials will be paid by Employer. Please clarify our under standing.	Bid condition is clear
40				Project Completion Period : Considering the overall scope of work, statutory requirements, terrain conditions, and interlinkages with substation readiness, we request confirmation that the project completion period may be considered as 30 (thirty) months from the effective date ofthe Contract Agreement.	Bid condition shall prevail

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
41				Payment Terms - Supply Portion We request confirmation that the payment terms for supply shall be aligned with prevailing Powergrid (PGCIL) standard payment terms, as indicated below:10% advance after signing of Contract Agreement - Interest free 80% on completion of supply of materials 5% on completion of substation erection/substation equipment erection Balance 5% on TOC	Bid condition shall prevail
42				Payment Terms - Erection Portion'For erection works, we request confirmation ofthe following payment structure as per PGCILpractice: 10% advance (interest-free) in two instalments linked with site office establishment 80% against completion of erection activities.Balance 10% on commissioning	Bid condition shall prevail
43				Defect Liability Period'We request the Defect Liability Period should be 12 months from the date of issuance ofTOC	Bid condition shall prevail
44		Commercial	Payment Terms	We request provision of 10% Interest Free Mobilization Advance against an equivalent Bank Guarantee recoverrable from orogressive running bills.	Bid condition shall prevail
45		Commercial	Running Account Bill	Kindly confirm that certified RA Bills shall be released within 21 days from submission.	Bid condition is clear.
46		Commercial Price Variation Clause	The tender envisages a firm price contract without any provision for price adjustment	Considering the contract completion of 24 months and the unprecedented volatility in the prices of electrical equipment, steel , coper, aluminium,cement, fuel and labour , we request the Employer to incorporate a comprehensive Price VariationClause (PVC). variation formula may be made applicable for all major electrical equipment like Power Transformer, outdoor switchyard equipment, Earthing,structure,structure, etc.	Bid condition shall prevail
47		Engineering	Vendors Approvals	Multiple approval cycle may affect completion. Kindly, review comments to one consolidated cycle to avoid delays.	Bid condition shall prevail
48		**NIT 2.2.2**	**SPECIFIC EXPERIENCE:** Successful experience of Supply, Erection, Testing and Commissioning of Pooling Sub-station/ Grid Sub-station of at least (2) two nos GIS/ AIS circuit breaker equiped bays of 220 KV or higher voltage level in one(1) Substation / Swichyard in preceding twenty (20) years. In support of above, the bidder should provide notarized copy of Supply order/ LOA/ Contract Agreement along with completion/ commissioning certificate and Performance/ successful operation certificate for at least 2 years from the date of commissioning issued by Purchaser/ Owner of the equipment.	**SPECIFIC EXPERIENCE:** Successful experience of Supply, Erection, Testing and Commissioning of Pooling Sub-station/ Grid Sub-station of at least (2) two nos GIS/ AIS circuit breaker equiped bays of 220 KV or higher voltage level in one(1) Substation / Swichyard in preceding twenty (20) years. In support of above, the bidder should provide notarized copy of Supply order/ LOA/ Contract Agreement along with completion/ commissioning certificate and Performance/ successful operation certificate for at least 2 years at least 1 years from the date of commissioning issued by Purchaser/ Owner of the equipment.	Bid condition shall prevail
49		SCC Clause 2.0 COMPLETION PERIOD / SCHEDULE	Twenty Four (24) Months from the date of issue of “Letter of Award/ Notification of Award”.	Requested for 30 months from the adte of issue of LOA	Bid condition shall prevail

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
1	-	Vol. V, Form 3 (Form of Contract Agreement) cl. 1.2 & SCC cl 1.	1.2 Order of Precedence (Reference GCC Clause 2) In the event of any ambiguity or conflict between the Contract Documents listed above, the order of precedence shall be the order in which the Contract Documents are listed in Article 1.1 (Contract Documents) above. The following documents shall constitute the Contract between the Employer and the Contractor, and each shall be read and construed as an integral part of the Contract: (a) This Contract Agreement and the Appendices hereto (b) Notification of Award (c) Special Conditions of Contract (d) Forms & Procedures (as listed) (e) Technical Specifications, Drawings, Technical Data Sheets and Model Quality Assurance Plan (f) General Conditions of Contract (g) Information for Bidders (h) The Bid and Price Schedules submitted by the Contractor	**The order of precedence among the various sections of technical specifications (i.e. General Technical Specifications, General Technical Requirements, Detailed Technical specification, Drawings, Technical Data Sheets and Model Quality Assurance Plan) is not defined in tender documents. We request you to clariy the same**	Bid condition is clear
2		Detailed Technical Requirement Cl. No. 4.27 of DTR	The loss figures quoted by the contractors (if higher than the maximum loss figures mentioned in Sl. No. 35 of this Power Transformer Technical parameters) shall be taken into account for penalty at the rates as indicated below. For fraction of a kW, the penalty shall be applied on pro-rata basis. No load loss Rs. 4,00,000 per kW I^2R Losses/Load Losses (Differential of whichever loss is higher shall be considered for penalty) Rs. 2,00,000 per kW Auxiliary loss Rs. 1,50,000 per kW	We understand that the capitalization of losses of Power Transformer is not applicable. Differentail between losses decalared by bidders shall not be considered for price evalautions. Please clarify	Bid condition is clear
3		General Technical Requirement "Annexure B"	Requirement of 750 kVA Diesel Generator	We understand that the 750kVA DG set is required for 400kV Madhogarh PSS only. And the DG set is not required for 400kV PSS Orai and 400kV PSS Pathrahi.	Bid condition is clear
4		General Technical Requirement "Annexure B	Bay Extension works at Orai PGCIL S/s tools and tackles and all accessories as per General technical specification of Section A clause- V & VII	Since the bay extension work is to be executed at an existing PGCIL substation, we request clarification on whether the detailed technical specifications of PGCIL shall be applicable, or if the specifications provided under the section 'Pooling Substation Part-1: Madhogarh Pooling Substation Section – B Detailed Technical Requirements' shall applicable.	Bid condition is clear
5		General Technical Requirement "Annexure B	Augmentation of DC system, AC system and CCTV at 400kV GIS Bay Extension PGCIL Substation.	We understand that augmentation of DC system, AC system for auxiliary power and CCTV at 400kV GIS Bay Extension PGCIL Substation is not required. Please confirm.	Bid condition is clear and prevail as per GTR Annexure-B
6		FCE-20523122-RE-DOC-SPC-9000-012, Section - 3 Page 335	4.13.2. HV switchgear shall have SF6 type capacitor bank duty vacuum circuit breaker for capacitor bank / dynamic reactive compensator feeder	NHPC is requested to please clarify any specific test required to establish this suitability.	Bid condition is clear

<table>
<tr><th>Sl.No.</th><th>Volume</th><th>Clause No.</th><th>Tender Provision</th><th colspan="2">Queries of Prospective bidders</th></tr>
<tr><th></th><th></th><th></th><th></th><th>Bidders Clarification</th><th>BSUL comments</th></tr>
<tr><td>7</td><td></td><td>Vol. V, Form 3 (Form of Contract Agreement) cl. 1.2 & SCC cl 1.</td><td>5.1.9. Total height of the switchgear panels shall not exceed 2500 mm. The
height of switches, push buttons and other hand operated devices shall not
exceed 1800 mm and shall not be less than 700 mm from bottom of the
panel base. All</td><td>Height of switchgear panels shall be 2600mm as per OEM type tested design. however, we confirm that the hand operated devices shall be within 700-1800mm. Please allow us.</td><td>Shall be finalized during detailed engineering</td></tr>
<tr><td>8</td><td></td><td>FCE-20523122-RE-DOC-SPC-9000-013;
Section - 3 Page 339</td><td>5.1.32. All protective relay panels shall be provided with test blocks (Micom P991 series with CT, PT,</td><td>We request you to allow other makes also as per OEM supply chain.</td><td>Bid condition is clear</td></tr>
<tr><td>9</td><td></td><td>FCE-20523122-RE-DOC-SPC-9000-013;
Section - 3 Page 342</td><td>5.4.9. Breakers for Capacitor Bank feeder shall be of suitably duty</td><td>NHPC is requested to please clarify any specific test required to establish this suitability.</td><td>Bid condition is clear</td></tr>
<tr><td>10</td><td></td><td>FCE-20523122-RE-DOC-SPC-9000-013;
Section - 3 Page 342</td><td>5.6.1. Voltage transformer shall be cast-resin, draw-out type from the front of the panel. Bus VT shall be mounted on adopter panel of bus coupler or shall be provided in separate panel. Line VT shall be mounted on the breaker carriage itself / below the breaker compartment.</td><td>Inline with standard practice in Solar sector, we recommend to allow nonwithdrawable type Line PT. The same design has been accepted by (non withdrawable type, floor mounted Line PTs) NTPC, NLC and others in the solar projects.
Bus PT however shall be withdrawable type</td><td>Bid condition shall prevail</td></tr>
<tr><td>11</td><td></td><td>FCE-20523122-RE-DOC-SPC-9000-013; Pg 2126/2525</td><td>BMU - Bay Metering Unit
BPU- Bay Protection Unit</td><td>Please explain the required functions and intended use of these devices. Please share model technical specifications.</td><td>Bid condition is clear</td></tr>
<tr><td>12</td><td></td><td>Power Transformer</td><td></td><td></td><td></td></tr>
<tr><td>13</td><td></td><td>Section - 3 Page 80</td><td>12. Technical Parameters (250 MVA, 400/33/33 kV Power Transformer)</td><td>Please provide the Winding Insulation Value.</td><td>Bid condition is clear</td></tr>
<tr><td>14</td><td></td><td>Section - 3 Page 80</td><td>12. Technical Parameters (250 MVA, 400/33/33 kV Power Transformer)</td><td>Please provide the types of bushing required.</td><td>Bid condition is clear</td></tr>
<tr><td>15</td><td></td><td>Section - 4 Page No 84</td><td>12. Technical Parameters (340 MVA, 400/33/33 kV Power Transformer)<table><tr><td>26)</td><td>Percentage impedance of nominal tap at 75°C at 170 MVA Base</td><td></td><td></td></tr><tr><td></td><td>HV-LV1 & HV-LV2</td><td>%</td><td>(+/- 7.5% Tolerance)</td></tr><tr><td></td><td>LV1-LV2</td><td>%</td><td>(+/- 15% Tolerance)</td></tr></table></td><td>Impedance and tolerance for this rating 340 MVA 400/33-33kV is not available in CEA guidelines. Please suggest.</td><td>Please refer corrigendum-2</td></tr>
<tr><td>16</td><td>General</td><td></td><td></td><td>The closure on the points outlined in the Deviation/Clarification Sheet will take precedence over any other documents provided with the RFP.</td><td>RFP along with corrigendum shall prevail</td></tr>
</table>

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
17	General			Any amendments to codes, standards, or newly issued guidelines made after the contract signing shall not be applicable to the current project.	Bid condition shall prevail
18	General			We shall not consider ROW issue related to land or access road in scope.	Bid condition shall prevail
19	General			Work related to TL not in bidder scope	Please refer corrigendum-2
20	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	5. Site Related Investigations 5.1. Topographical survey	Preliminary topographical survey has been carried out by the Owner and the same is available for information. The Contractor shall carryout additional topographic survey at no additional cost to owner.	topographical survey not received, kindly share the document.	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
21	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	4.7. Levels	High Flood level (HFL) is required to be arranged by Contactor for finalization of Finished ground level (FGL) of Pooling substation and will be fixed during detailed engineering.	Kindly confirm whether the finished ground level (FGL) for the switchyard should match the high flood level (HFL), be set at HFL + 150 mm, or may be established based on minimal on-site grading without the requirement of additional filling, provided that adequate drainage is installed to prevent any flooding.	Bid condition shall prevail
22	Pooling Substation Part-2: Orai and Pathrahi Pooling Substation Section - B Detailed Technical Requirements	5. Site Related Investigations 5.1. Topographical survey	Preliminary topographical survey has been carried out by the Owner and the same is available for information. The Contractor shall carryout additional topographic survey at no additional cost to owner.	topographical survey not received, kindly share the document.	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
23	Pooling Substation Part-2: Orai and Pathrahi Pooling Substation Section - B Detailed Technical Requirements	4.7. Levels	High Flood level (HFL) is required to be arranged by Contactor for finalization of Finished ground level (FGL) of Pooling substation and will be fixed during detailed engineering.	Kindly confirm whether the finished ground level (FGL) for the switchyard should match the high flood level (HFL), be set at HFL + 150 mm, or may be established based on minimal on-site grading without the requirement of additional filling, provided that adequate drainage is installed to prevent any flooding.	Bid condition shall prevail
24	General			Kindly clarify if any of the following is required : 1. Guest House 2. Permanent Store Shed/warehouse	Bid condition is clear
25		Compound wall with gates.		We have considered Precast boundary wall for yard boundary. Brick wall with plaster not considered.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
26	General			Kindly share tender drawings for better understanding of the requirement of the following: 1. Diesel Storage Shed 2. Transformer Oil Storage Shed 3. 33kV Switchgear Building - Pre Engineered Building (PEB) and foundation 4. GIS Building - Pre Engineered Building (PEB) and foundation 5. Substation control building	Bid condition is clear
27	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	UCMS	UCMS terminal point: □ Entire Setup of UCMS including the Workstations in Admin building which shall have direct control on UCMS shall be in the scope of contractor	1. Please clarify UCMS system in Bidder scope.Except PPC and Solar Plant SCADA.	Bid condition is clear
28	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	Bay Extension at CTU Substation.	As the Bay Extension Works shall be interfacing with POWERGRID substation, the required interface engineering shall be in the scope of the contractor for their respective scope / works.	1. Please clarify existing Make of GIS. 2. GIB Route Length to be clarified. 3.Allocated Bay number. 4. Existing SAS & Busbar protection Make. 5. Existing GIS Hall details with present scope GIS placement.	Required SLD is provided in the tender document and Bidder needs to conduct site visit for further information
29	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	PLCC		1.Please clarify the scope for PLCC in each substation.	Bid condition is clear
30	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification		48V battery	48V Battery system requirement is not Mentioned in tender document	Bid condition is clear
31	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	Fire Protection system		HVWS/Fire Hydrant system is not applicable for present scope.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
32	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	HT panel.	LV service (auxiliary) transformers	Only 2Nos. Of Aux. Trafo. Is required in each substation. However in HT panel board specs. 1Nos. Feeder is required for Auc. Trafo. In each panel board . Please clarify.	Bid condition is clear
33	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification		33kV Capacitor Banks (4 X 28 MVAr)	Total 4x28MVAr Capacitor bank in Madogarh S/S .	Bid condition is clear
34	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification		33kV Dynamic Reactive Power Compensating Equipment (2 X ± 28 MVAr)	Total 2x28MVAr Dynamic Reactive Power Compensating Equipment in Madogarh S/S .	Bid condition is clear
35	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification		Single Breaker Scheme	Please clarify Single breaker scheme is acceptable to CEA at Pathrahi PSS. Or We have to procced as per Tender SLD.If any changes in scheme shall be consider as ammendment .	Bid condition is clear
36	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification		Part-A: 300MW Orai PSS	02 X 24 MVAr Capacitor Banks (Automatic/Manual). However Dynamic Reactive Power Compensating Equipment is not applicable for present scope at Orai PSS	Bid condition is clear
37	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification		Part-B: 300MW Pathrahi PSS	02 X 24 MVAr Capacitor Banks (Automatic/Manual).However Dynamic Reactive Power Compensating Equipment is not applicable for present scope at Pathrahi PSS.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
38	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification		Part-A: 300MW Orai PSS	We have consider SPR room for control & relay Panels placement in Orai PSS.	Bid condition is clear
39	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification		Bay Extension Works at PGCIL Substation	1. We have not consider special tools & Spares for PGCIL substation scope.	Bid condition is clear
40	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	Part-2: Orai and Pathrahi Pooling Substation The mandatory spares specified below are for both Orai and Pathrahi pooling substations	Note: 1 set is for 3 Poles 5. 420 kV HORIZONTAL CENTRE BREAK/ DOUBLE BREAK ISOLATORS	Please clarify as per clause we assume 1 Set is for Single Phase (3 BPI Poles) or its 1 set of complete 3Phases.	Bid condition is clear
41	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	Annexure D - Special Tools	Part-1: Madhogarh Pooling Substation	1. We have conisder Tools as per list. However Please clarify the scope of supply of Online PD system its part of GIS or elsewhere mentioned in Special tools. 2. Relay Test kit scope to be clarified as same is not mentioned in special tools.Please clarify its mentioned as Universal protection test set and commissioning tool with standard testing software package, measuring equipment testing addon, basic IEC 61850 addon, CMC wiring accessory package, with Laptop latest version (8GB DDR, 1TB SSD with carrying case) preloaded with required software's Transport case and standard accessories.	Bid condition is clear
42	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	Annexure D - Special Tools	Part-2: Orai and Pathrahi Pooling Substation	1. We have conisder Tools as per list. 2. Relay Test kit scope to be clarified as same is not mentioned in special tools.Please clarify its mentioned as Universal protection test set and commissioning tool with standard testing software package, measuring equipment testing addon, basic IEC 61850 addon, CMC wiring accessory package, with Laptop latest version (8GB DDR, 1TB SSD with carrying case) preloaded with required software's Transport case and standard accessories.	Bid condition is clear
43	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	VII. Tariff Metering Panels	d) Tariff meters at Madhogarh Pooling substation for each 33 kV transmission lines (100MW feeder at Power transformer LV) of SPD, Station Service Transformers.	Please clarify its separate metering CT & VT or only metering core is required in protection CT at Incomer feeder.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
44	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	XVI. LT Switchboards	415 V, 3 phase 4 wire AC Park Infrastructure Distribution board 01 No	1. Please clarify AC park Infrastructure DB is required in Madogarh S/S or in all 3 Substations. 2. Please clarify the load to be consider in Aux. trafo. And Number of Feeder required for AC park Infra.	Bid condition is clear
45	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	XVII. DC System	220 V DC systems shall have a battery backup time of minimum of Ten (10) hours when AC supply to chargers fails.	As per CEA 4Hours Backup is required for 220V DC battery system and same is accepted at PGCIL.	Bid condition is clear
46	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification	ERT		Please provide the ERT value to be consider for all locations of PSS.	Bid condition is clear
47	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification & Annexure B - Bill of Quantity Part-1: Madhogarh Substation Sr. No.-39	Operation and Maintenance	Operation and maintenance of the 400kV Madhogarh Pooling substation for three (3) Years.	Please clarify the following: 1. O&M is included in the scope of this project, and the contractor is required to undertake O&M activities for a period of 36 months. 2. The O&M scope is limited only to the 400 kV Madhogarh Pooling Substation and does not extend to other substation (Orai & Pathrahi).	Please refer corrigendum-2
48	Volume – II B, SPECIAL CONDITIONS OF CONTRACT-Clause no. 4.0	CONTRACT PERFORMANCE BANK GUARANTEE FOR OPERATION AND MAINTENANCE	CONTRACT PERFORMANCE BANK GUARANTEE FOR OPERATION AND MAINTENANCE	As this provision has been deleted in the tender document, kindly clarify whether this requirement is applicable to the subject tender or not.	Bid condition is clear
49	ATTACHMENT –11	Site Visit Report	CERTIFICATION OF THE SITE VISIT BY THE BIDDER IN THEIR OWN FORMAT	Please clarify whether submission of the site visit report is mandatory for bidders who have not conducted a site visit.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
50	Volume II B	Section-2, Pg-2 (GTS Project Introduction) & SCC Cl. 2	Section-2 (GTS): "…both Phase-1 and Phase-2 shall commence simultaneously on the same timeline, and all activities under both phases shall be executed in parallel to ensure the entire project is commissioned within the stipulated duration of 18 months." SCC Cl. 2: Completion period stated as 24 months (also expressed as 730 days incl. monsoon season from date of LOI in the Madhogarh PSS scope	The completion period is stated as 18 months in the GTS (Section-2, Pg-2) and as 24 months/730 days in the SCC (Cl. 2) and in the Madhogarh PSS scope clause. Please clarify which period is contractually binding and confirm the correct Completion Period.	SCC Clause 2 shall prevail
51		Vol-2 (Technical Specification) — Single Line Diagrams	33 kV Single Line Diagrams (SLDs) for the pooling substations are not included in the bidding documents. These are essential for bidders to assess 33 kV switchgear configuration, capacitor bank arrangement, busduct routing, and auxiliary transformer sizing.	Please provide 33 kV SLDs for all three pooling substations to enable accurate scoping and pricing of the 33 kV switchgear and associated equipment	33 kV switchgear scheme is provided for all three pooling substations in the tender drawing
52		SCC Cl. 37.0 — Work Schedule and Bar Chart	SCC Cl. 37.0 states: "Work Schedule and Bar Chart is as per attachment." The attached indicative programme allocates 2 months for drawing/document submission after LOI	The 2-month allocation for vendor drawing submission in the indicative bar chart is insufficient. Preparation and approval of GIS, power transformer, and 33 kV switchgear vendor drawings typically requires 4–6 months after LOI. We request that the detailed Work Schedule and Bar Chart be mutually discussed and finalised during the post-award kick-off meeting.	This is an indicative schedule & can be finalized mutually.
53		Section-3, Pg-367, Cl. 5.4.7 (Dynamic Reactive Power Compensating Equipment)	Cl. 5.4.7 (Additional Features): "Contractor to submit third-party verified PSSE / PSCAD and benchmarking reports/files of the reactive power device for combined Grid study as per CEA standard for solar plant during detail engineering."	The combined Grid study using PSSE/PSCAD is typically the responsibility of the Solar Power Plant contractor, as it requires modelling of the complete solar plant including inverters, MFTs, and plant level control systems data and models for which are outside the PSS EPC contractor's scope. We request that this grid study requirement be assigned to the Solar Plant contractor, with the PSS contractor's obligation limited to providing substation parameters and equipment models as inputs to that study.	Bid conditions shall prevail
54		Section-3 — Dynamic Reactive Power Compensating Equipment (Cl. 5.0 & 5.2.7)	Cl. 5.0: Dynamic reactive power compensating equipment (SVG/STATCOM) is included in PSS scope for reactive power compensation for the 1200 MW solar park. Cl. 5.2.7: Device shall have target setting for power factor/reactive power/harmonic suppression up to 50th order. The source of harmonics is the solar plant's inverters and associated equipment — outside PSS scope.	We presume that any SVG, STATCOM, or harmonic filters required specifically to address reactive power deficiencies or harmonic distortion generated by the solar plant's inverters and associated equipment (outside the PSS boundary) are not within the PSS EPC contractor's scope. Please confirm the scope boundary: the PSS contractor's obligation should be limited to reactive compensation equipment as specified in the BOQ/SLD, and any additional devices mandated by grid study findings should be covered by the solar plant contractor.	Bid conditions shall prevail
55		Section-2, Page No. 25 — Bay Extension Works at CTUIL/PGCIL Substation, Ai	Section-2, Pg-25, Cl. 1 (Bay Extension Scope): "One and a Half Breaker schemed 400 kV GIS Modules (To be compatible with existing GIS modules) — The Busbars shall be designed to match with existing busbar current rating.	Please provide the following details for the existing 400 kV GIS installation at the CTUIL/PGCIL substation, Ait, Orai, to enable compatibility assessment and accurate scoping: (a) Existing 400 kV GIS busbar current rating and continuous thermal rating. (b) Existing GIS manufacturer's name, model/type.	SLD already enclosed in the bid and Bidder needs to conduct site visit for further information
56		Vol-2 — General Site Information / Civil Scope	The tender document does not provide plot/site boundary dimensions for the three PSS locations (Madhogarh, Orai, Pathrahi). Accurate boundary measurements are essential for estimating compound wall quantities — a significant civil cost item at all three sites.	Please provide the site boundary dimensions (length and width) for each of the three pooling substation plots to enable accurate assessment and pricing of compound wall and perimeter fencing quantities.	Bidder needs to conduct site visit for detailed information
57		Vol-2 / Section-3 — Civil Works; Site Levels	Natural Ground Level (NGL) data for the proposed PSS areas at Madhogarh, Orai, and Pathrahi has not been provided in the bidding documents. Topographic survey and NGL data are required to estimate earthwork (cutting and filling) quantities, which can be a substantial cost item in greenfield substation projects.	Please provide the Natural Ground Level (NGL) or existing ground contour data for the proposed substation areas at all three locations, to enable assessment of earthwork cutting and filling quantities for accurate BOQ pricing.	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
58		Section-3, Cl. 4.7.2 — Site Levels / High Flood Level	SCC Cl. 4.7.2: "High Flood Level (HFL) is required to be arranged by Contractor for finalisation of Finished Ground Level (FGL) of Pooling Substation and will be fixed during detailed engineering. Finished Ground Floor Level (FFL) for GIS building and Main Control Building shall be minimum 1000 mm above FGL	Please provide the available High Flood Level (HFL) data for each of the three PSS locations. HFL is critical for determining the Finished Ground Level (FGL), which in turn drives earthfill quantities, foundation depths, and civil cost estimates. Bidders cannot price these items accurately without this data at bid stage	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
59		Vol-1 / ITB — Employer's Responsibilities; Site Handover	The bidding documents do not specify the current status of land acquisition or the expected timeline and mode of site handover for the three PSS locations (Madhogarh, Orai, Pathrahi). Delayed or phased land handover directly impacts the contractor's ability to mobilise, establish site infrastructure, and maintain the project completion schedule	Please confirm: (a) Current status of land acquisition for each of the three locations (b) Whether the entire plot at each location will be handed over to the contractor in a single instance at commencement, or in phases, the expected handover timeline for each phase. (c) Any encumbrances, right-of-way restrictions, or third-party approvals pending that could affect site access or commencement of civil works.	Required land for the projects is in possession of BSUL and shall be handed over as required by the contractor.
60		Section-3, Cl. 4.7.2 — Bought-Out Earth Fill Material	SCC Cl. 4.7.2: "All bought-out earth material required to raise the FGL and FFL shall be non-expansive soil." The specification does not identify approved borrow areas or specify the haul distance for non-expansive earth fill procurement — a significant variable in civil cost estimation for greenfield substation projects requiring substantial fill.	Clause 4.7.2 mandates non-expansive soil for all bought-out earth fill material to raise FGL/FFL, but does not identify approved borrow areas or specify maximum permissible haul distance. Please clarify: (a) Whether the Owner/BSUL will identify and approve borrow areas/quarries within reasonable haul distance of each PSS location (Madhogarh, Orai, Pathrahi). (b) If sourcing is entirely the Contractor's responsibility, please confirm the typical haul distance assumed in the design basis, so that bidders can price earth fill transportation costs on a consistent basis	Bid condition shall prevail & all necessry arrangementt shall be in contractor's scope.
61			Pathrai & Orai Pooling substation locations	As per the KMZ file provided in the tender documents, the location of the Patrahi & Orai Pooling Substation differs from the location shown during the site visit. We observed that the location shown is approximately 30-40 feet lower in elevation/depth compared to the location indicated in the KMZ file. Please clarify in this regard to prepare realistic estimation and also provide the final coordinates and updated KMZ file	Bidder needs to conduct site visit for detailed information
62			765kV Orai GIS	As informed earlier, we visited the proposed substation site. However, the Site In-charge informed us that permission from PGCIL to visit existing 765kV Orai GIS Substation had not been obtained. Therefore, we were unable to visit the substation. Hence we requestr you to provide the following drawings to assess the requirement 1) GIS vendor layout 2) GIS Gas diagram 3) Existing extension module termination details	Bidder needs to conduct site visit for detailed information
63		Volume_I_IFB	This land allocation is deemed sufficient for the development of the 1200 MW capacity of the Jalaun Solar Park, along with the necessary infrastructure	We understand that the land to be handed over to the successful bidder shall be free from all encumbrances, including any legal, physical, or financial liabilities, ensuring unhindered access and development. Kindly confirm that the responsibility for clearing all encumbrances prior to handover rests with the Employer, and that the bidder shall not bear any risk, cost, or delay arising from such issues. Please confirm our understanding.Further, in case there is any change in the tentative layout specified in the tender due to modifications in the land during the NOA or award stage, we understand that the bidder shall be entitled to claim cost implications arising from such changes. Kindly confirm this understanding as well	Bid condition is clear
64		Volume II TS	Pathrahi PSS: 33 kV HT Switchgear – BOQ Line Item No. 21	The quantity of the 33 kV HT Switchgear specified in the Technical Specification does not match the quantity mentioned in the BOQ under Line Item No. 21. Kindly clarify the correct quantity to be considered.	TS shall prevail & refer corrigendum -2

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
65		Civil	Pile Foundation	We understand that no pile foundation has been envisaged for this project. Kindly confirm.	Please conduct site visit & same shall be finalized duriing detailed engineering
66		Tender Document, Price Schedules, Details of quantities for part A-1, Sl. No. 12 and Annexure B, Part-1, Sl. No. 13 and Tender Document, General Technical Specification, Cl. No. 2.1.2, Point no. 09	33kV Capacitor Bank (1 X 16 MVAr) equipment and all accessories required as per technical specification of Section-B Clause-XIII and 33kV Capacitor Bank (28 MVAr) equipment and all accessories required as per technical specification of Section-B Clause-XIII and 33kV Capacitor Banks (4 X 28 MVAr)	Based on mentioned clause, rating of capacitor bank at Madhogarh S/s are contradactory. Kindly confirm the actual rating requirment of Capacitor bank at Madhogarh S/s	TS shall prevail & refer corrigendum -2
67		Tender Document, List of Annexure, Page No. 2106/2525		In the Tender document List of drawing is provided whereas its heading found as list of Annexure, we understand that the same to be treated as list of drawing. Kindly confirm if our understanding is correct.	List of drawing is provided in the tender document.
68		Tender Document, Price Schedules, Details of quantities for part A-1, Sl. No. 12 and Annexure B, Part-1, Sl. No. 13 and Tender Document, List of Annexure, 33kV Scheme, drg no. FCE-20523122-RE-DWG-SLD-9040-001		In the BOQ provided under the tender document, it is mentioned that 7 nos. of 17 MVar capacitor banks are required. However, in another provided Annexure-B, 4 nos. of 28 MVar capacitor banks are specified. Further, as per the received SLD except for Transformer-2, the 33 kV HT switchgear of all transformers is connected to 2 nos. of capacitor banks per switchgear, i.e. 2 nos. in Switchgear-1 and 2 nos. in Switchgear-2, resulting in a total of 8 nos.of capacitor banks for Transformer-1 and Transformer-3 combined. Based on the above, we understand that the total requirement is 8 nos. of capacitor banks. Kindly confirm whether our understanding is correct.	TS shall prevail & refer corrigendum -2
69		Tender Document, Price Schedules, Details of quantities for part A-1, Sl. No. 12 and Annexure B, Part-1, Sl. No. 13 and Tender Document, List of Annexure, 33kV Scheme, drg no. FCE-20523122-RE-DWG-SLD-9040-001		As per the BOQ provided under the tender document, the requirement is specified as 2 nos. of Dynamic Reactive Power Compensating Equipment (28 MVAr). However, as per the received SLD, except for Transformer-1 and Transformer-3, the 33 kV Dynamic Reactive Power Compensating Equipment (28 MVAr) to be connected to Transformer-2 as 2 nos. per switchgear, i.e., 2 nos. in Switchgear 1 and 2 nos. in Switchgear-2, resulting in a total requirement of 4 nos. of Dynamic Reactive Power Compensating Equipment (28 MVAr). Based on the above, we understand that the total requirement is 4 nos. of Dynamic Reactive Power Compensating Equipment (28 MVAr). Kindly confirm whether our understanding is correct	Bid condition is clear
70		Tender Document, General Technical Specification, Cl. No. 1.1	All the HT/LT/Instrumentation/Communication cable termination required for equipment's in between 33kV Switchgear to incoming bay of CTUIL Grid Substation shall be in the scope of the contractor for their respective scope / works.	We understood that here CTUIL grid substation is used for Madhogarh S/s, kindly confirm if our understanding is correct.	Bid condition is clear
71		General		Kindly share the Reference Contol room building layout for our reference and consideration for scope of work at Madhogarh S/S.	Reference Layout is available in the list of drawings.
72		General	-	For Extension work at Orai PGCIL Ss, kindly share the Existing 400kV GIS details such as Bus Rating, Gas Pressure, Extension module, Make and etc.	Required SLD is provided in the tender document and Bidder needs to conduct site visit for further information
73		General	-	In the tender document Detailed tech requirements for Madhogarh as well as Orai and Pathrahi Substation are provided which includes technical specifications, meanwhile technical specifications for Orai PGCIL S/s are unavailable under the same. We understand that PGCIL technical specification for the scope of work at Orai PGCIL S/s to be used, kindly confirm if our understanding is correct.	SCOPE OF WORK is defined in GTS

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
74		TS_XVII. DC System_Madhogarh		As per the tender documents we need Lead acid SAN container tubular batteries and 220 V DC – Float Cum Boost Chargers, But no technical specification have been attached. Kindly provide the technical specification of Battery and Float Cum Boost Charger.	Refer DC system specifications
75		General		As per the tender document we have understood that we do not need to submit any Joint deed of undertaking for GIS and Step up Transformers at the time of bid submission. Kindly confirm our understanding.	Bid condition is clear and the bidder is requested to refer Clause no 2.2.6 of Instructions to Bidders in this regard.
76		General		As per the tender document there are 3 locations i.e. Madhogarh, Orai and Pathrahi. But in the tender document it is mentioned about the coordinates of 2 locations i.e. Madhogarh and Orai. Kinly us the geophaphic Coordinates of Pathrahi Pooling Substation.	Please refer corrigenedum-2
77		General		As per the tender documents and SLD we have understood that there are 2 line bay extensions at Orai GIS, we request you to provide the existing details of 400 kV GIS with GA Drawing and bus bsr details.	Required SLD is provided in the tender document and Bidder needs to conduct site visit for further information
78		General	SLD OF 33 kV HT Switchgear_Pooling Substation 33 kV Scheme orai and Pathrahi	Kindly provide the technical specification of BMU (Bay Metering Unit) as indicated in the SLD for 33kV Scheme ORAI and Pathrahi	Shall be finalized during detailed Engineering
79		Cl. No. 22.2.4.2 of CEA Spec	Each digital RTCC relay shall be used to control 1 bank of transformers (i.e. 3 Nos. 1-Phase units or 1 No. 3-Phase unit). No. of relays including spare relay, if any, shall be specified by the utility as per requirement.	We are offering only One Relay per Transformer, kindly confirm our understanding	Bid Condition is clear
80		TS_GTR Madhograh_1 8.4. Special Tests	8.4.2. Dynamic Short circuit tests certificates for test conducted earlier on transformers of similar type and rating shall be furnished for the Owner's review. If Dynamic Short Circuit Test certificate is not available then the ability to withstand dynamic effec ts of short circuit shall be demonstrated by method (b) calculation and design and manufacture considerations (Section 4.2 of IS: 2026, Part-5). The same shall be further in line with Annexure-A of IS: 2026, Part-5.	If the bidder is not able to furnish dynamic short-circuit test report for the offered ratings. However, if they provide the calculations as per Annexure-A of the IEC standard for the offered transformers only, will it be accepeted. Kindly confirm.	Bid condition shall prevail
81		TS_GTR Madhograh_1 5.27. Each Transformer shall be supplied with the following minimum accessories	4.Conservator Protection Relay (CPR) (Plug & Socket Type with required length of armoured cable) 45.OLTC Oil Surge Relay (Plug & Socket Type with required length of armoured cable)	if the manufacturer considers terminal box type Conservator Protection Relay and Oil surge relay instead of plug-in-type due to CPR & Oil surge relay is not available in Plug & Socket Type arrangement.Please confirm.	Bid condition shall prevail
82		Cl. 22.2.4.6 Digital RTCC panel	It shall be possible to communicate/integrate with all digital RTCC relays of different make located at different locations in the substation by making hardwire and using IEC 61850 communication link. The integration of existing conventional RTCC panel with Digital RTCC panel of different make shall also be possible.	By Using IEC 61850 Protocal It is possible to communicate with Digital RTCC relay of Different /Same makes available at different Locations .But it is not possible to Communicate /Integeating of Different makes by Hard wiring in the Panel.	Bid condition shall prevail
83		TS_GTR Madhograh_1 8.4. Special Tests - 8.4.2	Dynamic Short circuit tests certificates for test conducted earlier on transformers of similar type and rating shall be furnished for the Owner's review. If Dynamic Short Circuit Test certificate is not available then the ability to withstand dynamic effects of short circuit shall be demonstrated by method (b) calculation and design and manufacture considerations (Section 4.2 of IS: 2026, Part-5).	As per tender documents and BOQ there are 2 transformers, which have a rating of 250 MVA & 340 MVA. Is it mandatory to submit the dynamic short circuit test report for both of the transformers at the time of bid submission. Kindly confirm. If we are not able to submit the dynamic short circuit test report for the mentioned transformer , so in that case if we provide the DSC report of higher rating transformer with an undertaking of performing DSC test after award. Will it be granted, kindly confirm our understanding.	Bid condition shall prevail
84		TS_GTR Madhograh_1 12. Technical Parameters	Segregated phase busduct	As per the request of our Transformer vendor we request you to provide below information for Busduct to decide Bushing ampacity rating due to deration for both 250MVA & 340MVA. 1. Ambient temperature inside the bus duct 2. Bus duct enclosure temperature 3. Bus duct conductor temperature	Bid condition is clear and Please refer TS in this regard
85		TS_GTR Madhograh_1 5.10. Optical Temperature Sensor:	Fibre optics sensor based temperature mearsuring system	Temperature rise measurement shall be done through conventional method only. Readings of temperature measurment with fiber optics sensors are recorded only as reference, kindly confirm our understanding.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
86		General	Details of existing GIS	Entire dimension details shall be made available by EPC from existing GIS manufacturer as per IEEE C37.122.6 at the time of receipt of Purchase order. - Complete End module details(Existing GIS dimensions ,conductor dimensions , mounting PCD, O-ring details, Plating/ Coating details if any) - Rupture disk detail - Density monitor details - SF6 Gas pressure details of end module (ABS./ Rel.) - Conductor Material detail - Design pressure of enclosure	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.
87		General	Details of Existing GIS	Existing GIS Gas SLD, Section and Plan View.	SLD enclosed in the tender document
88		General	Availability of existing GIS supervisior + Tools to operated existing GIS	We request You to kindly make available existing GIS supervisior at site for entire duration of coupling of present GIS to existing GIS. Also the cables from existing LCC to present scope LCC. Tools, consumables, spares required to open existing GIS shall be scope of customer/Existing GIS OEM. Any charges occuring on account of Existing GIS supervisor and tools shall be borne by purchaser. Request customer to kindly confirm the same.	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document. All responsibilty lie with the contractor.
89		General	Shutdown	A shutdown plan of the existing substation is mandatory and is required for a maximum of 3 times. A detailed schedule can be furnished during the time of project execution.	Shall be finalized during detailed Engineering
90		General	Warranty	Existing GIS at site is governed by Warranty, the warranty provisions of existing GIS shall be taken care by the Purchaser / End User and not by GIS OEM performing extension activity for present scope. Kindly confirm	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.
91		General	Details of existing GIS at site	EPC shall provide the complete interface (extension) module drawing of existing GIS which is to be extended, strictly in accordance with IEEE C37.122.6	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.
92		General	CT Data	In the tender documant attached is the CT datasheet inline with the PGCIL any changes to the scope shall have time & price implications. Will it be accepted.	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.
93		General	Layout	As per our understanding the attached is the proposed layout, request customers concurrence on same, any changes to layout shall have time & price impications.	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.
94		General		We have enclosed indicative layout received as part of tender document. GIB bends are governed based on that layout only. Additional bends, road crossings shall have time and price implications.	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.
95		General	6_QTS_QAP_and_FQP	All the tests shall be in line with the IEC and as per attached QAP. We Request you to confirm the same.	Bid Condition is clear
96		1.4 Part 2 - Orai & Pathrahi Pooling substation	The Orai pooling substation shall be an Air Insulated Substation and shall be having following configuration:	As per BOQ received we understand that there is 1dia extension of one and half breaker scheme of existing PGCIL ORAI GIS extension however as per specification AIS substation mentioned we are considering in line with the BOQ, request customer to kindly clarify the same.	Bid Condition is clear
97		1.4 Part 2 - Orai & Pathrahi Pooling substation	Type and No. of Bays - Five (05) Numbers : - Three (03) Nos. bays (one Complete Dia.) for termination of Power Transformer & Line-In from Madhogarh PSS - Two (02) Nos. bays (Two breaker scheme) for termination of Line-Out to CTUIL Substation.	We ahve observed a discrepancy observed between the BOQ and Specification, As per BOQ 1 no of ICT bay, 1 No of line bay, and 1 No of tie bay along with 3 Nos of SF6 to Air bushing mentioned and the same shall be provided, attached are the drawings for PGCIL ORAI extension request customer to kindly confirm.	Bid Condition is clear
98		SLD		For VT 3rd core discription is mentioned PS we understand that the same is typo error as the same class is not applicable, we shall offer 3P. Request customer to confirm.	Please refer corrigendum-2

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
99		SLD	Note : 1. ALL THE RATINGS MENTIONED HERE BY ARE TENTATIVE ONLY AND SHALL BE FINALIZED DURING DETAILED ENGINEERING AS PER THE CALCULATIONS. IF ANY RATINGS OR PARAMETERS CHANGES THEN THE SAME SHALL BE PROVIDED BY THE BIDDER WITHOUT ANY XTRA COST TO OWNER.	Any changes other than offered during detailed engineering shall be mutually discussed for feasibility check and shall have time & price implications.	Bid Condition is clear
100		SLD	Note : 15. THE CT & VT RATIOS & RATINGS / DATA ARE TENTATIVE ONLY. FOR CT & VT, THE RATIO, ALF (ACCURACY LIMIT FACTOR) / ISF (INSTRUMENT SECURITY FACTOR), ACCURACY CLASS, BURDEN, KNEE POINT, EXCITATION CURRENT, RCT ETC. SHALL BE AS PER REQUIREMENT AND EPC CONTRACTOR SHALL FURNISH THE DETAILS WITH CALCULATIONS DURING DETAIL ENGINEERING STAGE. ANY CHANGE IN THE PARAMETERS OF CT & VT REQUIRED AT THE TIME OF DETAILED ENGINEERING SHALL HAVE TO BE INCORPORATED WITHOUT ANY EXTRA COST TO OWNER.	Any changes to the CT VT parameters other than offered during detailed engineering/ contract finalization stage shall be discuss with us for feasibility check and shall have time & price implications.	Bid Condition is clear
101		SLD	23. SURGE ARRESTOR DISCHARGE CURRENT RATING SHALL BE DECIDED AFTER INSULATION COORDINATION STUDY DURING DETAILED ENGINEERING DESIGN.	As per SLD the same is AIS type thus excluded from SEIL GIS scope.	Bid Condition is clear
102		SLD Discrepancy	Discrepancy observed between the SLD.	We have received 2 SLD for madogarh and the discrepancy is observed between both the SLD thus we shall follow the drawing no ***FCE-20523122-RE-DWG-SLD-9040-002.*** Attached is the offered SLD in line with it request customer to confirm.	Bid Condition is clear
103		2. Scope of Supply & Work	The scope covers design, manufacture, assembly, testing at manufacturer's works before dispatch, packing, marking, shipping, unloading, storage at site, erection, testing and commissioning of factory assembled, metal enclosed, SF6 GIS, Gas Insulated Bus Ducts and ancillary equipment as specified here under.	We shall offer FOR, however unloading storage, erection at site shall be excluded from SEIL GIS scope. Only supervision for ITC of GIS shall be provided.	Bid Condition is clear
104		2. Scope of Supply & Work	Further the scope shall include all equipment/ components/tools/spares required making a complete, reliable and troubling free functional system, even if not specifically listed in this specification.	GIS OEM scope shall be limited to GIS and as per agreed scope.	Bid Condition is clear
105		2. Scope of Supply & Work	The scope also includes special training of owner's testing, operation and maintenance staff.	3 days of training for 4 personal shall be provided at factory/site excluding travel and accomodation charges.	Bid Condition is clear
106		2. Scope of Supply & Work	Further the scope shall include all equipment/ components/tools/spares required making the extension work complete, reliable and troubling free functional system, even if not specifically	For jalao we shall provide extension link for future extension however for PGCIL ORAI extension kindly refer the points mentioned in second sheet Extension project (General).	Bid Condition is clear
107		2. Scope of Supply & Work	CEA Guidelines "Guidelines for the Validity Period of Type Test(s) conducted on Major Electrical Equipment in Power Transmission System" in May, 2020	In line with CEA guidelines validity of the type test shall be 15 years and the same is offered. No any repitation of type test is considered.	Bid Condition is clear
108		4. General Requirements of Gas Insulated Switchgear	4.1.2. Bus-coupler Bay will comprise of 4.1.3. Power transformer Bay shall comprise of 4.1.4. 400 kV Transmission line bays at Madhogarh PSS shall comprise:	Discrepancy observed between discription of bays mentioned in the tender SLD and specifications hence we shall offer as per tender SLD and BOQ reqest customer to confirm.	Bid Condition is clear
109		4. General Requirements of Gas Insulated Switchgear	4.3.7. An on-line continuous Partial Discharge Monitoring (PDM) system shall be designed to provide an automatic facility for the simultaneous collection of PD data at multiple points on the GIS & its associated GIB ducts and Voltage Transformers adopting UHF technique. The data stored shall provide a historical record of the progress of PD sources and shall identify the areas of maximum activity.	Our scope shall be limited to provide UHF compatible sensors on GIS supply of online PD monitoring system shall be excluded from SEIL GIS scope.	Bid Condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
110		4.8	4.8. Continuous on-line monitoring and diagnostics systems to monitor gas density, gas pressure, leakage, moisture, etc., operating parameters such as current, voltage, temperature, etc. complete with sensors and integration of the systems with plant SAS & UCMS system. Hybrid density monitor shall be provided.	Please refer our replies as below : 1. Our scope shall be limited to supply of PD sensors only. Supply of online PD monitoring kit is excluded fro SEIL scope. 2. Gas pressure, and leakage shall be measured using Hybird DM. Our scope shall be limited to supply of Hybrid DM on GIS and providing converter in LCC. Supply of Online PD monitoring system shall be excluded from SEIL scope. 3. Moisture can be measured using Dew point meter, when GIS is in online condition. Supply of dew point meter is excluded from SEII scope. 4. Volatge and current can be measured in CRP/SCADA 5. Temperature rise of GIS is as per IEC standards. Thus, no separate temperature sensors are excluded from SEIL scope	Bid Condition is clear
111		5. Design Aspects of GIS	5.1.6. Local control cubicle for GIS shall be equipped with suitable hardware & software for remote control operation and conform to the bay level controller unit.	LCC shall be equipped with hardware interlocks no softlogics interlocks are envisaged, BCU shall be part of CRP and same shall be in EPC scope, request customer to kindly accept the same.	Bid Condition is clear
112		5. Design Aspects of GIS	5.1.9 Due to safety requirement for working on this pressurized equipment, whenever the pressure of the adjacent gas compartment is reduced, it should be ensured by the contractor that adjacent compartment would remain in service with reduced pressure.	Considering safety requirement we do not recommend the same as the dielectric strength shall be reduced and can not be kept in service	Bid condition shall prevail
113		5. Design Aspects of GIS	Layout aspects of Madhogarh PSS GIS	Only Structures for GIB shall be provided, bus post insulator, foundation bolt any other equipment shall be excluded from SEIL GIS scope of supply.	Bid condition shall prevail
114		5. Design Aspects of GIS	Layout aspects	Clearances as per OEM standard design in line with IEC shall be provided.	Bid condition shall prevail
115		5. Design Aspects of GIS	5.7.10. The wall thickness of the enclosure shall be based on the design pressure as well as considering a burn through duration of 0.1 sec.	Burn through shall be as per IEC.	Bid Condition is clear
116		5. Design Aspects of GIS	5.8.3. Mimic diagrams shall be provided on local control panels. The mimic strips shall be made of anodized aluminium and shall be screwed onto the panel. The width of mimic strip shall not be less than 5 mm	Mimic diagram shall be in line with the OEM standard practices.	Bid condition shall prevail
117		5.12. Relays	5.12. Relays	Protection relay shall be part of CRP.	Bid condition shall prevail
118		5.15. Internal Wiring	5.15.1 The insulation shall be halogen free and flame retardant. Power circuits shall be wired with stranded copper conductors of adequate sizes to suit the rated current, the minimum size shall be 2.5 sq. mm	FRLS Cables shall be provided. Control cabeling size shall be 1.5sq.mm and CT VT cabels size shall be 2.5 sq.mm in line with the OEMs standard design. Request customer to accept the same.	Bid condition shall prevail
119		5.17. Labels and Diagram Plate, Rating Plates	5.17. Labels and Diagram Plate, Rating Plates	Ratings plates shall be porvided for Circuit breaker, current transformer for DS and ES stickering arrangement shall be provided in line with the IEC and as per OEM stadard practices.	Bid condition shall prevail
120		6. Performance Guarantee		The GIS is supplied in export and domestic market and is in hustle free operation hence we do not envisaged performance guarantee and not considered, however all the type test are performed and routine, fat test and field test shall be performed on GIS. No any other performance test are considered.	Bid condition shall prevail
121		8.2. Routine Tests	gg) Lightening Impulse withstand voltage test hh) Switching Impulse withstand voltage test	The same is part of type test. And shall not be performed as a routine test.	Bid Condition is clear
122		8.3. Field Tests	o) Voltage transformer should withstand 1 minute power frequency test	Field test shall be as per QAP shared.	Bid Condition is clear
123		9. Spares, Special Tools & Tackles	9.2. Start Up & Commissioning Spares, 9.3. Mandatory Spares, 9.4. Recommended Spares	Spares as per BOQ received shall be provided any other spares are not considered in the scope.	Bid condition shall prevail
124		10.2. Drawings and Documents to be Submitted after Award of Contract	10.2. Drawings and Documents to be Submitted after Award of Contract	Applicable to GIS Only shall be provided.	Bid condition shall prevail

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
125		11. Technical Parameter	3.0. GIS ISOLATORS / DISCONNECTORS 3.4. Operating mechanism AC Motor Operated & Manual 3.5. Degree of protection IP55 3.6. Rating of auxiliary coil for electrical interlock 230 V AC,10A	3.4 All the motors shall be DC operated. 3.5 For indoor GIS the IP class shall be : IP43 3.6 The same shall be 220VDC/110DC. Request customers concurrence on the same.	Bid condition shall prevail
126		A. Circuit Breakers	4.9. Mandatory Maintenance Equipment	Excluded from SEIL GIS scope of supply.	Bid Condition is clear
127		10. Design and Constructional Features for Safety Earth Switches	Safety grounding switch shall also be mechanically key interlocked with its associated disconnector.	Eletrical interlocks shall be provided.	Bid condition shall prevail
128		17. `Design Features	Bushing shall be composite/polymer type robust and suitable for hot line washing and shall be provided with “water cut sheds”.	Hot line washing is applicable for porceline equipments.	Bid condition shall prevail
129		22.1. Current Transformers		Attached are the offered CT VT parameters in line with the SLD only received request customer to confirm the same.	Bid condition shall prevail
130		22.1. Current Transformers	For Tariff metering core (0.2s) of current transformer separate (dedicated) secondary terminal box shall be provided with required sealing arrangements / facility as per requirement of concerned authorities.	As per tender SLD Received we understand that there is no GIS Tariff metering is mentioned, hence the same is excluded from SEIL GIS scope of supply, request customer to clarify the same.	Bid condition shall prevail
131		IV. Surge Arresters	IV. Surge Arresters	Not applicable to GIS.	Bid condition shall prevail
132		General	6_QTS_QAP_and_FQP	All the tests shall be in line with the IEC and as per attached QAP. Request customer to confirm the same. No any additional tests are considered.	Bid condition shall prevail
133		General	Discrepancy observed between the SLD & BOQ	We are offering in line with the Tender SLD received, Attached is the Technical Offer request customer to confirm.	Bid condition shall prevail
134	400kV Solar Pooling Substation Key SLD	TCE-20523122-RE-DWG-SLD-9040-002	The Transformer -2 shall be connected with dynamically variable compensation device	We presumed that Dynamically variable compensation device supply , installation , engineering & its associated cable, materials are not in bidder scope. Please confirm	Bid condition is clear
135	400kV Solar Pooling Substation Key SLD	TCE-20523122-RE-DWG-SLD-9040-002		What does it mean by ABT "**" & Standby .Please clarify.	Bid condition is clear
136	Proposed Pooling S/S Plan Madhogarh Substation	FCE-20523122-RE-DWG-LAY-9040-001	Necessary Parking Area & EV charging facilities shall be provided by bidder.	We presume that providing EV charging facilities are not in bidder scope. Please confirm.	Bid condition is clear
137	Proposed Pooling S/S Plan Madhogarh Substation	FCE-20523122-RE-DWG-LAY-9040-001	Solar power developers shall terminate their power feeder at 33kV Switchgear.	We presume that supply , laying of 33kV cable & associated terminations are not in bidder scope. Please Confirm.	Bid condition is clear
138	Proposed Pooling S/S Plan Madhogarh Substation	FCE-20523122-RE-DWG-LAY-9040-001	The power cable from SPDS shall enter into the PSS area through the respective cable corridor developed by PSS.	We presume preparation of cable corridor & laying of cables are not in bidder scope. Please confirm	Bid condition is clear
139	Proposed Pooling S/S Plan Madhogarh Substation	FCE-20523122-RE-DWG-LAY-9040-001		We presume that pooling substation main control room cum GIS building is a building with ground floor only. Also We presume that GIS & Control room building is single building Please confirm.	Bid condition is clear
140	Pooling Substation -- 33kV Scheme Madhogarh s/s	FCE- 20523122-RE-DWG- SLD- 9040		Please confirm the number of runs of 630 sqqm ,33kV cable to plan the 33kV GIS cable box .	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
141	Pooling Substation --33kV Scheme Madhogarh s/s	FCE- 20523122-RE-DWG- SLD- 9040		We presume that supply , installation of capacitor bank /dynamic reactive power compensative device are not in bidder scope. Any cable (LV /MV /HV)between capacitor bank / dynamic reactive power compensative device are not in bidder scope. Please confirm.	Bid condition is clear
142	Tariff Metering Panel	FCE-20523122-RE-DOC-SPC-9000-012 ,	Section-3, Page-251	As per Scope of work (clause 2.1) it seems that Tariff metering panel to be installed at Madhogarh Pooling Substation for outgoing feeders a) Ait Substation at CTUIL/ PGCIL b) Pathrahi PSS. Also tariff metering panel required for remote end i.e a) At Ait Substation at CTUIL/PGCIL b) Pathrahi PSS. Please confirm.	Bid condition is clear
143	Tariff Metering Panel	FCE-20523122-RE-DOC-SPC-9000-012 ,	Section-3, Page-251	We presume that there will no separate AIS metering CT & PT shall be required at Madhogarh pooling substation for Tariff metering . GIS CT & AIS CVT shall be used for Tariff metering. Please note that sealing arrangement for metering CT inside GIS is not possible. Please confirm .	Bid condition is clear
144	Tariff Metering Panel	FCE-20523122-RE-DOC-SPC-9000-012 ,	Section-3, Page-251	We presume that the metering panel will be placed inside GIS cum control room building in CRP room. No separate metering room envisaged . Please confirm.	Bid condition is clear
145	Fibre optic network	Section - 3		Please share brief fibre optic network to understand the complete scope.	Bid condition is clear
146	HT SWITHCGEAR	Section - 3, Cl: 5.7.14 & Cl:5.7.45	" Synchro check numerical Relays shall be provided for incomers and all the outgoing feeders (other than service transformers) and shall have provision of two sets of voltage signal inputs for the purpose of synchronization." As per clause 5.7.45 only outgoing feeder to SPD has check sync relay.	Two different clause speaks about two different requirement of synchronization a) Clause 5.7.14 speaks about synchronisation for all the incoming & outgoing feeder & b) Clause 5.7.45 speaks about synchronization for only outgoing feeder to SPD. Please confirm the final requirement w.r.t synchronization .	Bid condition is clear
147	HT SWITHCGEAR	Section - 3, Cl: 5.2.6	"The arc detection system shall be of the light sensitive/current sensitive type or pressure switch based "	Please confirm the requirement of Arc detection for 33kV switchgear panel.	Bid condition is clear
148	HT SWITHCGEAR	Section - 3, Cl: 4.1	"Two (02) nos. 33kV pooling switchgears shall be located / placed together in a suitable prefab building / container type arrangement with elevated height. "	Please confirm whether the Prefab /container will be pressurized ventilation or Air conditioned.	Bid condition is clear
149	33kV DYNAMIC REACTIVE POWER COMPENSATION	Section - 3,	" The Dynamic reactive power compensating equipment shall be meet the basic requirement of providing the reactive Power compensation to meet the reactive power of 1200 MW solar Park. However, this voltage source converter device is expected to provide the reactive power/current in both lead and lag direction independent of network voltage and also damping/eliminating the Power oscillations and mitigation of transient/dynamic voltage oscillations and Power Quality values /parameters of solar plants including harmonics within limits at Pol"	We presume that the Dynamic reactive power compensation / voltage source converter is not in bidder scope. Any interconnecting LV / HV cable between 33kV switchgear & dynamic reactive power compensating device shall not be in bidder scope. Please confirm.	Bid condition is clear
150	33 kV Static Shunt Capacitor with Allied Equipment	Section - 3,		We presume that the 33kV Static shunt capacitor with allied structure are not in bidder scope. Please confirm. If same is in bidder scope , please confirm the location.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
151	Station Service Transformer	Section - 3,	As per clause 5.13.1 "Line side bushing CTs and Neutral bushing CTs shall be provided as specified" However as per clause 5.7.45 of HT switchgear the protection of Station transformer feeder doesn't have any Differential & REF protection.	Please confirm the requirement of phase side & neutral side bushing CT of 750KVA station service transformer.	Bid condition is clear
152	Fire Detection and alarm system	Section - 3, Clause 4.1	The scope of fire fighting work shall consists of □ Fire Detection and alarm System □ Portable Fire Extinguishers □ Wheel/ Trolley mounted Fire Extinguishers □ Sand buckets (min. 9Ltrs capacity) with stand	We presume the below system is not in scope of bidder related to fire fighting 1) Hydrant system for switchyard. 2) HVWS system for any transformer. 3) Any Passive fire system (like painting, fire sealing etc) Please reconfirm.	Bid condition is clear
153	Fire Detection and alarm system	Section - 3, Clause 5.1.3	Fire detection system shall be provided for Transformer area .	Please note that Transformer yard is open to atmosphere , hence Fire detection & Alarm system will not be applicable for Transformer area. Please confirm	Bid condition is clear
154	Civil & Structural Works	Section - 3, Clause 8.2.1	"Design of foundations at various levels shall be dependent upon the soil bearing capacity at that level"	Please share us the side soil bearing capacity for tender estimation	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
155	Civil & Structural Works	Section - 3, Clause 4.7.2	Switchyard equipment foundations plinth shall be minimum 600mm above Finished Ground level (FGL)	Switchyard equipment foundation plinth level is generally 300mm above FGL followed in most of the substation in India. Please reconfirm the plinth level.	Bid condition is clear
156	Civil & Structural Works	Section-3, Clause:6.4.1.	Compound wall of 2.2 m height above FGL, with 600 mm dia barbed wire concertina wire above, shall be provided around entire substation area	Please confirm the length of boundary wall . From the tender layout it is difficult to estimate the boundary wall length , since the drawing is without any dimension.	Bid condition is clear
157	Civil & Structural Works	Section-3, Clause:8.1.2 & 8.1.3	Disel stroge shed & Transfomrer oil strore shed	We presume that Disel stroge & Transformer oil stroge shed are not in scope of bidder. If same is in bidder scope , then please share the capacity & its location.	Bid condition is clear
158	Earthing and Lightning Protection System	Section - 4,		Please share us the resistivity of site for estimation purpose.	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
159	Earthing and Lightning Protection System	Section - 4, Cl:4.7	For earhing design considered gravel resistivity shall be 1000 ohm meter.	1000 ohm meter of gravel resistivity is very low. As per general practice in India & also as per CBIP gravel resistivity shall be 3000 ohm meter. Please reconfirm gravel resistity .	Bid condition shall prevail
160	Earthing and Lightning Protection System	Section - 4, Cl:5.2	Lightning protection shall be provided for various buildings as per IS:2309.	Please note that 2309 is withdrawn. Building DSLP will be as per IEC.Please confirm.	Bid condition shall prevail
161	LT Switch Boards	Section - 4	However, the same may get change as per the system studies carried out by the EPC contractor during detail engineering stage.	Please share us the detail list of system studies in scope of bidder.	Shall be finalized during detailed engineering
162	DG SET	Section - 3, Cl:4.4	The 750 kVA DG Set shall be sized for the following continuous loads: 1. Admin building 2. Canteen building 3. Guest house 4. Solar Park Road and Area Lighting 5. Sump Pump and Water Pump (DOL Starters) 6. Any other load as required shall be considered during detail engineering.	Please share us the mentioned load for DG sizing.	Bid condition shall prevail
163	LT SWITCHBOARD	Sec -3, CL:4.1.2	Outgoing Feeder to Park Infrastructure DB (Feeder 1)	Need detail load for park infrastructure for finalizing of feeder rating & station transformer	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
164	DC SYSTEM	Sec -3, CL:4.2.7	THD < 5%	THD value of <5% is very difficult to achive in substation battery charger. Reqeust to reconfirm the THD value.	Bid condition is clear
165	Step Up Power Transformers	Sec-3. Cl:5.15.8	Valve for UHF / PD Sensors (min. 04 nos.)	We presume that there will be no partial discharge monitoring for Step up transformer in bidder scope . Only valve provision shall be kept in transformer . Please confirm.	Bid condition is clear
166	400kV GIS	Sec-3. Cl:4.5	On-line continuous Partial Discharge Monitoring (PDM)	Please confirm the scope of Partial discharge monitoring .	Bid condition is clear
167	EXCLUSION	SEC-2, CL:1.9	LT outgoing cables and its' termination (Specific from Park Infrastructure DB to Other building DB), However, development of IT infrastructure in the Administration building is in bidder's scope.	Please elaborate what are the IT infrastructure shall be provided by bidder in Administration building.	Bid condition shall prevail
168	Scope of works for Madhogarh Pooling Substation:	SEC-2, CL:2.1.1	HTLS Conductor for AIS portion	Please share the name of HTLS conductor .	Bid condition is clear
169			1)Detailed and aggregated simulation model (PSS and PSCAD) and report up to POC 2)Dynamic parameters file *.dry to be provided 3)Encrypted user defined model (UDM) in a format suitable for latest PSSE release PSS/E (*.dll files) for electromechanical transient simulation for components (in case no availability of validated generic model 4) PQ capability curve at POC and reactive power study 5)Power Plant Controller Generic Modelling with PSCAD 6)Steady state analysis Load flow 7)Transformer and line modelling and loading and block diagram of electrical model. 8)Dynamic and transient studies. (Voltage and frequency response tests) 9)EMT Model of the Plant (in PSCAD Platform) and Benchmarking Through Dynamic Study Final Updated dynamic model after COD of the entire station (within one month of COD declaration) 10)Evaluation of fault levels and maximum short circuit level at each bus	We presume that this studies are not in bidder scope. Same shall be in Statcom/ dynamic reactive power compensating OEM/ vendor scope.Please confirm.	Bid condition is clear
170	SINGLE LINE DIAGRAM FOR 415V AC SYSTEM - PHASE-1(MADOGARH PSS)	DRG NO: FCE-20523122-RE-DWG-SLD-9140-001		Please share park infrastructure load (like common area, canteen ,guest house, administrative building etc) for proper sizing of park infrastructure DB & station transformer.	Bid condition is clear
171	**Extension works at CTUIL / PGCIL substation**				
172	Extension works at CTUIL / PGCIL substation:	SEC-2, CL:2.3	The scope of this specification shall include One number of 400kV One and a Half Breaker scheme (One dia) extension works at AIT PGCIL Substation.	Please share following details for proposer extension of 400kV GIS bay a) Make of existing GIS bay. b) GIS GA drawing (plan & section) along with existing interface module drawing. C) Existing GIS building GA drawing with location of cut out & floor earthing drawing . d) Existing 400kV GIS building cable trench drawing. e) Existing Out door layout drawing	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
173	Extension works at CTUIL / PGCIL substation:	SEC-2, CL:2.3.3	Gas Insulated Busducts to be extended up to outdoor yard.	We presume that the GIB (gas insulated busduct) shall be extended near to outgoing line tower. However for spare bay the GIS bus duct shall be restricted upto building wall. Please confirm	Bidder needs to conduct site visit for further information. .
174		SEC-2, CL:2.3.3	FOTE communication at CTUIL/PGCIL substation.	Pleas share the Fote communication network drawing for better understanding of scope.	Bidder needs to conduct site visit for further information.
175	The scope of services shall include the following:	SEC-2, CL:2.7	System studies like Load Flow, Short Circuit, Switching Transient, Insulation co- ordinations, Harmonics study, and Relay coordination shall be carried out with the latest version of reputed software (ETAP, Siemens PSSE or as per requirement of concerned RLDC / ISTS system authorities) & PSCAD/EMTDC software to confirm the adequacy of the equipment ratings proposed in this specification	We presume that this studies are not applicable for this existing substation . Please confirm	Bid condition is clear
176	The scope of services shall include the following:	SEC-2, CL:2.7	All necessary clearances and approval by CEA, CEIG, CTUIL / PGCIL, GRID INDIA, RLDC / NLDC / LDC's / PESO or, any other statutory bodies related to PSS package.	We presume that statutory approval (like CEA, CEIG , CTUIL/PGCIL, GRID INDIA , RLDC/ NLDC/LDC's /PESO or any statutory bodies) are not in bidder scope. Bidder will support with required technical document only to client for getting this approval.	Bid condition is clear
177	Extension works at CTUIL / PGCIL substation:	SEC-2, CL:2.3.3	Earthing system	Please share existing earth mat drawing for proper estimation of earthing material.	Bid condition is clear
178				We presume that there will be no scope of work related to fire fighting ,FDA, VMS in bidder scope. Please confirm.	Bid condition is clear
179				We presume that there are no GIS PD monitoring scope for new bay & existing bay in bidder scope. Please confirm.	Bid condition is clear
180					
181	**Orai and Pathrahi Pooling Substation**				
182	Scope of Works for the Orai and Pathrahi Pooling Substation	Section-2, Cl:2.2.6	Solar Plant Control and Monitoring System (UCMS)-Main SCADA, which collects data from all the Field SCADA at the Solar Power Plants, Weather Monitoring stations and SAS at the Switchyard.	We presume that there are no scope of work in Solar plant related scope with bidder . No integration work/ interfacing cable is there with Solar Plant in bidder scope. Please confirm.	Bid condition is clear
183	Scope of Works for the Orai and Pathrahi Pooling Substation	Section-2, cl: 2.2.6	Power Plant Controller-PPC system, which manages the Generation and Power Flow from Solar plant and maintaining the required network parameters, viz, Voltage, PF, Active Power etc.	We presume that there are no scope of work present in power plant related work with bidder .No integration work/ interfacing cable is there with power Plant in bidder scope Please confirm.	Bid condition is clear
184	Scope of Works for the Orai and Pathrahi Pooling Substation	Section-2, cl: 2.2.6	Interface with SPP SCADA for data collection and control.	We presume interface with SPP SCADA is not in bidder scope. Please confirm.	Bid condition is clear
185	Scope of Works for the Orai and Pathrahi Pooling Substation	Section-2, cl: 2.2.6	Interconnection with PQM at PSS end remote end.	We presume this interconnection is not in bidder scope.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
186			All work at Substation end for PQ meter and its PPC RIO panel, FOTE (data+ voice+ tele protection), Broadband, Splicing in FODP/FODF, installation of FODP/FODF, Approach cable splicing in FODP/FODF and laying up to switching substation shall be in scope of Contractor. Taking CTUIL / ISTS / RLDC work permit, clearance, approval of location where all system shall be installed, power supply for system and construction, tools and tackles, vehicle permit etc. shall be scope of Contractor.	a) Please share us the FOTE network drawing for better understanding of FOTE scope. b) We presume that statutory approval (like CEA, CEIG , CTUIL/PGCIL, GRID INDIA , RLDC/ NLDC/LDC's /PESO or any statutory bodies) are not in bidder scope. Bidder will support with required technical documents only to client for getting this approval.	Bid condition is clear
187	FCE-20523122-RE-DWG-SLD-9040-004(SINGLE LINE DIAGRAM ORAI S/S) & FCE-20523122-RE-DWG-SLD-9040-005(SINGLE LINE DIAGRAM PATHRAHI S/S			We presume that there are no requirement of CSD / PIR for ORAI & PATRAHI S/S. Please confirm.	Bid condition is clear
188				Please share us the SBC & Soil resistivity value.	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
189	Tentative BOQ for 400 kV AIS Orai Pooling Substation		Fire Detection and Alarm System and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXIII	Please clarify the scope related to fire fighting for both Orai & Pahari S/S . We presume that only Fire detection Alarm system (FDA) is in bidder scope. Hydrant system , HVWS system etc re not in bidder scope. Please confirm.	Bid condition is clear
190				Please confirm the length of boundary wall for both Orai & Patharahi S/S. From the tender layout it is difficult to estimate the boundary wall length , since the drawing is without any dimension.	Bid condition is clear
191					
192	Land Development	6.1.1	The land is almost flat and will be handed over to the Contractor as it is basis.	We believe that fairly level ground will be handed over to successful bidder only +/- 100mm land levelling & micro grading is in bidder scope. Kindly confirm.	Bid condition is clear
193	Earth Filling	4.7.2	High Flood level (HFL) is required to be arranged by Contactor for finalization of Finished ground level (FGL) of Pooling substation and will be fixed during detailed engineering. ….....All bought out earth material required to raise the FGL and FFL shall be non-expansive soil.	We believe that bought out earth not required for land development. moreover non availability of proposed site topography & HFL data, assessment of land filling has not been considered. Kindly confirm	Bid condition is clear
194	Topography Survey	5.1.1	Preliminary topographical survey has been carried out by the Owner and the same is available for information. The Contractor shall carryout additional topographic survey at no additional cost to owner.	Kindly share the site wise topography survey drawing for batter understanding of land profile.	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
195	Soil investigation	5.1.3	Preliminary soil investigation has been carried out by the Owner and the same is available for information. Typical data from bore logs and test results are available in the report.	Please share the Soil investigation report for assessment of substation foundation design.	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
196	Compound wall	6.4.1	Compound wall of 2.2 m height above FGL, with 600 mm dia barbed wire concertina wire above, shall be provided around entire substation area.	Please confirm that no retailing wall will be required and mentioned the length of Compound wall to be considered.	Bid condition is clear
197	Approach road	6.7.1	Road network consisting of approach roads from the solar park main road,	Kindly specify the distance of Approach road to be considered,	Bid condition is clear
198	Car parking	6.9.1	Aesthetically pleasant car parking shed shall be provided, suitable to park four wheelers and two wheelers at suitable location to be decided during detail Engineering.	Kindly specify the size of parking.	Bid condition is clear
199	Substation Control room building	8.4.1	This building shall be of 230 mm thick brick wall with, and metal sheet roofing supported on structural steel.	We trust that proposed Control room building also PEB building with brick cladding. Kindly confirm our understanding.	Bid condition is clear
200	Transformer foundation	8.7.1	Transformers shall be founded on RCC foundations with rails on the top and oil soak pits	Block foundation not envisaged. Kindly confirm.	Bid condition is clear
201	Crush Stone paving	8.6	Crushed stone shall be laid over Geotextile of sheet laid over soil.	Kindly elaborate the scope with detail specification of Geotextile.	Bid condition is clear
202	Room Dimention	9.2	Dimension of all rooms shall be based on area covered by electrical / I&C equipment plus working space plus free space and additionally space reserved and / or required for future installation of equipment	Kindly specify the other utility room details with required dimension, i.e. Office room , conference Room, toilet & pantry, etc.	Bid condition is clear
203	Roof Top Solar	9.23.1	Suitable provision shall be provided on roof for future installation and maintenance of solar panels.	Kindly provide load data to consider during design of PEB building like GIS, Control Room & 33KV Switchgear room.	Bid condition is clear
204	Alluminium Partition	9.25.5	Control room wall up to the false ceiling level shall be of aluminium glazed partition.	We believe that this partition will be applicable between 400KV GIS hall & Control Room common wall. Kindly confirm our understanding.	Bid condition is clear
205	Galvanisation thickness	11.17.3	Galvanizing shall be carried out by hot dip process in a proper and uniformly heatedbath.	Kindly specify the galvanizing thickness on structural member.	Bid condition is clear
206	3D Drawing	14.7	3D drawing of GIS building and Switchgear building	We belive that external architechtural view willl be provided by bidder. Kindly confirm.	Bid condition is clear
207			340 MVA, 400/33-33 kV Power Transformer Dynamic short Circuit Test	**340 MVA, 400/33-33 kV Power Transformer** Declaration for Design, Calculation & Short Circuit Withstand Capability Being a non-standard design,the bidder shall submit detailed design calculations along with manufacturing considerations to demonstrate the transformer's capability to withstand the dynamic effects of short- circuit conditions, in line with the Theoretical evaluation of the ability to withstand the dynamic effects of short circuit and Definition of similar transformer in accordance to IEC. The above design calculations and considerations shall be prepared by reputed OEM and shall be submitted during the detailed engineering stage, vetted/accepted by third party agency in accordance with the tender requirements. Hence forth dynamic effects of short-circuit conditions shall be establish only through detailed design calculations during detailed engineering. Kindly confrim the same.	Bid condition is clear
208	General		3 years of Comprehensive Operation and Maintenance of the system (Substation & TL)	We request to remove AMC from the EPC bidder scope	O&M of the system is not in the scope of the contractor
209	SLD			For VT 3rd core discription is mentioned PS we understand that the same is typo error as the same class is not applicable, we shall offer 3P. Request customer to confirm.	Please refer Corrigendum-2

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
210	SLD			For busbar earthing fast acting earthing switches are mentioned, however the trapped charges are less in busbar, work-in-progress earthing switch shall suffice the requirement. Request customers concurrence on same.	Bid condition shall prevail
211	SLD		Note : 1. ALL THE RATINGS MENTIONED HERE BY ARE TENTATIVE ONLY AND SHALL BE FINALIZED DURING DETAILED ENGINEERING AS PER THE CALCULATIONS. IF ANY RATINGS OR PARAMETERS CHANGES THEN THE SAME SHALL BE PROVIDED BY THE BIDDER WITHOUT ANY XTRA COST TO OWNER.	Any changes other than offered during detailed engineering shall be mutually discussed for feasibility check and shall have time & price implications.	Bid condition is clear
212	SLD		Note : 15. THE CT & VT RATIOS & RATINGS / DATA ARE TENTATIVE ONLY. FOR CT & VT, THE RATIO, ALF (ACCURACY LIMIT FACTOR) / ISF (INSTRUMENT SECURITY FACTOR), ACCURACY CLASS, BURDEN, KNEE POINT, EXCITATION CURRENT, RCT ETC. SHALL BE AS PER REQUIREMENT AND EPC CONTRACTOR SHALL FURNISH THE DETAILS WITH CALCULATIONS DURING DETAIL ENGINEERING STAGE. ANY CHANGE IN THE PARAMETERS OF CT & VT REQUIRED AT THE TIME OF DETAILED ENGINEERING SHALL HAVE TO BE INCORPORATED WITHOUT ANY EXTRA COST TO OWNER.	Any changes to the CT VT parameters other than offered during detailed engineering/ contract finalization stage shall be discuss with us for feasibility check and shall have time & price implications.	Bid condition is clear
213	SLD		23. SURGE ARRESTOR DISCHARGE CURRENT RATING SHALL BE DECIDED AFTER INSULATION COORDINATION STUDY DURING DETAILED ENGINEERING DESIGN.	As per SLD the same is AIS type thus excluded from SEIL GIS scope.	Bid condition is clear
214	SLD Discrepancy		Discrepancy observed between the SLD.	We have received 2 SLD for madogarh and the discrepancy is observed between both the SLD thus we shall follow the drawing no ***FCE-20523122-RE-DWG-SLD-9040-002.*** Attached is the offered SLD in line with it request customer to confirm.	Bid condition is clear
215	General		Layout	Kindly support with the layout for NHPC project.	Bid condition is clear
216	Annexure D - Special Tools		Annexure D - Special Tools	Tools and tackles shall be excluded from SEIL GIS scope.	Bid condition is clear
217	Project Completion timeline			**Request to extend the project timline to Min. 30 Months from the date of major drawimng/layout approvals.**	Bid condition shall prevail
	II. 400 kV Gas Insulated Switchgear (GIS)				
218	2. Scope of Supply & Work		The scope covers design, manufacture, assembly, testing at manufacturer's works before dispatch, packing, marking, shipping, unloading, storage at site, erection, testing and commissioning of factory assembled, metal enclosed, SF6 GIS, Gas Insulated Bus Ducts and ancillary equipment as specified here under.	We shall offer FOR, however unloading storage, erection at site shall be excluded from SEIL GIS scope. Only supervision for ITC of GIS shall be provided.	Bid condition is clear
219	2. Scope of Supply & Work		Further the scope shall include all equipment/ components/tools/spares required making a complete, reliable and troubling free functional system, even if not specifically listed in this specification.	GIS OEM scope shall be limited to GIS and as per agreed scope.	Bid condition is clear
220	2. Scope of Supply & Work		The scope also includes special training of owner's testing, operation and maintenance staff.	3days of training for 4 personal shall be provided at factory/site excluding travel and accomodation charges.	Bid condition is clear

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				Bidders Clarification	BSUL comments
221	2. Scope of Supply & Work		Further the scope shall include all equipment/ components/tools/spares required making the extension work complete, reliable and troubling free functional system, even if not specifically	For jalao we shall provide extension link for future extension however for PGCIL ORAI extension kindly refer the points mentioned in second sheet Extension project (General).	Bid condition is clear
222	2. Scope of Supply & Work		CEA Guidelines “Guidelines for the Validity Period of Type Test(s) conducted on Major Electrical Equipment in Power Transmission System” in May, 2020	In line with CEA guidelines validity of the type test shall be 15years and the same is offered. No any repitation of type test is considered.	Bid condition is clear
223	4. General Requirements of Gas Insulated Switchgear		4.1.2. Bus-coupler Bay will comprise of 4.1.3. Power transformer Bay shall comprise of 4.1.4. 400 kV Transmission line bays at Madhogarh PSS shall comprise:	Discrepancy observed between discription of bays mentioned in the tender SLD and specifications hence we shall offer as per tender SLD and BOQ reqest customer to confirm.	Bid condition is clear
224	4. General Requirements of Gas Insulated Switchgear		4.3.3. SF6 Gas Filling, Evacuation, Recovery Plant 4.3.4. Portable gas measuring analyser with pump back facility of SF6 gas. 4.3.5. Equipment should measure following: List of SF6 Special Tools is tabulated below: 4.3.6. Breaker operation analyzer with transducers.	Excluded from GIS OEM scope of supply.	Bid condition is clear
225	4. General Requirements of Gas Insulated Switchgear		4.3.7. An on-line continuous Partial Discharge Monitoring (PDM) system shall be designed to provide an automatic facility for the simultaneous collection of PD data at multiple points on the GIS & its associated GIB ducts and Voltage Transformers adopting UHF technique. The data stored shall provide a historical record of the progress of PD sources and shall identify the areas of maximum activity.	Our scope shall be limited to provide UHF compatible sensors on GIS supply of online PD monitoring system shall be excluded from GIS OEM scope of supply.	Bid condition is clear
226	4.4. Controlled Switching Device (CSD) on Transformer Bay at Madhogarh Pooling Substation			CSD as per IEC shall be provided any test at GIS factory shall be excluded from SEIL GIS scope.	Bid condition is clear
227	4.7. Electric Overhead Travelling (EOT) Crane		4.7. Electric Overhead Travelling (EOT) Crane	Excluded from SEIL GIS scope of supply.	Bid condition is clear
228	4.8		4.8. Continuous on-line monitoring and diagnostics systems to monitor gas density, gas pressure, leakage, moisture, etc., operating parameters such as current, voltage, temperature, etc. complete with sensors and integration of the systems with plant SAS & UCMS system. Hybrid density monitor shall be provided.	Please refer our replies as below : 1. Our scope shall be limited to supply of PD sensors only. Supply of online PD monitoring kit is excluded fro SEIL scope. 2. Gas pressure, and leakage shall be measured using Hybird DM. Our scope shall be limited to supply of Hybrid DM on GIS and providing converter in LCC. Supply of Online gas monitoring system shall be excluded from SEIL scope. 3. Moisture can be measured using Dew point meter, when GIS is in online condition. Supply of dew point meter is excluded from SEII scope. 4. Volatge and current can be measured in CRP/SCADA 5. Temperature rise of GIS is as per IEC standards. Thus, no separate temperature sensors are excluded from SEIL scope	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
229	4.10 - 4.30		4.10. Balance of equipment / accessories like bus post insulators, clamps & connectors, spacers, HTLS Conductors, IPS AL pipe, ground wire, insulators & hardware, gantry and equipment structures, bay marshaling kiosks as per SLD to complete the 400kV GIS Substation package. Whatever AIS equipment is required for operation of 400kV pooling substation shall be in scope of contractor. 4.11. All jumpers and connections. 4.12. Protection & Relay panels shall consist of the following: 4.13. Switchyard Automation system (SAS) consisting of following:	Not applicable to GIS OEM excluded from SEIL GIS scope.	Bid condition is clear
230	4.14 - 4.17		4.14. Phasor Measurement Unit (PMU) ,4.15. Availability based tariff (ABT), 4.15. Availability based tariff (ABT) Compatible energy meters (SEM's) for each 400 kV Powertransformer bays, line bay and Bus coupler bay. 4.16. Standalone disturbance recorder for each switchyard bay, 4.17. Two (2), time synchronization equipment for switchyard control room.		Bid condition is clear
231	4.18		4.18. Set of Special Tools & Tackles, Startup & Commissioning spares.	Spares as per BOQ received shall be provided, any other spares, special tools and tackles shall be excluded from SEIL GIS scope.	Bid condition is clear
232	4.19		4.19. Recommended spares for 3 years of operation & maintenance.	Shall be coverered under the spares as per BOQ applicable to GIS, hence we are not offering recommended spares.	Bid condition is clear
233	4.20		4.20. Any other item(s) not mentioned specifically but necessary for the satisfactory completion of scope of supply as per accepted standards.	Our scope shall be limited to Technical offer and agreed scope.	Bid condition is clear
234	5. Design Aspects of GIS		5.1.6. Local control cubicle for GIS shall be equipped with suitable hardware & software for remote control operation and conform to the bay level controller unit.	LCC shall be equipped with hardware interlocks no softlogics interlocks are envisaged, BCU shall be part of CRP and same shall be in EPC scope, request customer to kindly accept the same.	Bid condition is clear
235	5. Design Aspects of GIS		5.1.9 Due to safety requirement for working on this pressurized equipment, whenever the pressure of the adjacent gas compartment is reduced, it should be ensured by the contractor that adjacent compartment would remain in service with reduced pressure.	Considering safety requirement we do not recommend the same as the dielectric strength shall be reduced and can not be kept in service	Bid condition is clear
236	5. Design Aspects of GIS		Layout aspects of Madhogarh PSS GIS	Only Structures for GIB shall be provided, bus post insulator, foundation bolt any other equipment shall be excluded from SEIL GIS scope of supply.	Bid condition is clear
237	5. Design Aspects of GIS		Layout aspects	Clearances as per OEM standard design in line with IEC shall be provided.	Bid condition is clear
238	5. Design Aspects of GIS		5.7.10. The wall thickness of the enclosure shall be based on the design pressure as well as considering a burn through duration of 0.1 sec.	Burn through shall be as per IEC.	Bid condition is clear
239	5. Design Aspects of GIS		5.8.3. Mimic diagrams shall be provided on local control panels. The mimic strips shall be made of anodized aluminium and shall be screwed onto the panel. The width of mimic strip shall not be less than 5 mm	Mimic diagram shall be in line with the OEM standard practices.	Bid condition is clear
240	5.12. Relays		5.12. Relays	Protection relay shall be part of CRP.	Bid condition is clear
241	5.15. Internal Wiring		5.15.1 The insulation shall be halogen free and flame retardant. Power circuits shall be wired with stranded copper conductors of adequate sizes to suit the rated current, the minimum size shall be 2.5 sq. mm	FRLS Cables shall be provided. Control cabeling size shall be 1.5sq.mm and CT VT cabels size shall be 2.5 sq.mm in line with the OEMs standard design. Request customer to accept the same.	Bid condition shall prevail
242	5.16. Local Alarm/Annunciation		5.16.2. c) High gas pressure for each gas compartment of the bay.	Not applicable as hybrid density monitors are offered.	Bid condition is clear

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				Bidders Clarification	**BSUL comments**
243	5.17. Labels and Diagram Plate, Rating Plates		5.17. Labels and Diagram Plate, Rating Plates	Ratings plates shall be porvided for Circuit breaker, current transformer for DS and ES stickering arrangement shall be provided in line with the IEC and as per OEM stadard practices.	Bid condition is clear
244	5.18. Earthing		5.18. Earthing	Our scope shall be limited to provide Earthing provision and earthing proposal for GIS supply of earthing material shall be excluded from SEIL GIS scope of supply.	Bid condition is clear
245	5.19. Other Construction Requirements		5.19. Other Construction Requirements	Not applicable to GIS OEM excluded from SEIL GIS scope.	Bid condition is clear
246	6. Performance Guarantee			The GIS is supplied in export and domestic market and is in hustle free operation hence we do not envisaged performance guarantee and not considered, however all the type test are performed and routine, fat test and field test shall be performed on GIS. No any other performance test are considered.	Bid condition is clear
247	8.2. Routine Tests		gg) Lightening Impulse withstand voltage test hh) Switching Impulse withstand voltage test	The same is part of type test. And shall not be performed as a routine test.	Bid condition is clear
248	8.3. Field Tests		o) Voltage transformer should withstand 1 minute power frequency test	Field test shall be as per QAP shared.	Bid condition is clear
249	9. Spares, Special Tools & Tackles		9.2. Start Up & Commissioning Spares, 9.3. Mandatory Spares, 9.4. Recommended Spares	Spares as per BOQ received shall be provided any other spares are not considered in the scope.	Bid condition is clear
250	9.5. Special Tools & Tackles		9.5. Special Tools & Tackles	Excluded from SEIL GIS scope of supply.	Bid condition is clear
251	10.2. Drawings and Documents to be Submitted after Award of Contract		10.2. Drawings and Documents to be Submitted after Award of Contract	Applicable to GIS Only shall be provided.	Bid condition is clear
252	11. Technical Parameter		3.0. GIS ISOLATORS / DISCONNECTORS 3.4. Operating mechanism AC Motor Operated & Manual 3.5. Degree of protection IP55 3.6. Rating of auxiliary coil for electrical interlock 230 V AC,10A	3.4 All the motors shall be DC operated. 3.5 For indoor GIS the IP class shall be : IP43 3.6 The same shall be 220VDC/110DC. Request customers concurrence on the same.	Bid condition is clear
253	A. Circuit Breakers		4.9. Mandatory Maintenance Equipment	We are considering only mandaory spares which are mentioned in the TS.	Bid condition is clear
254	10. Design and Constructional Features for Safety Earth Switches		Safety grounding switch shall also be mechanically key interlocked with its associated disconnector.	Eletrical interlocks shall be provided.	Bid condition is clear
255	17. `Design Features		Bushing shall be composite/polymer type robust and suitable for hot line washing and shall be provided with “water cut sheds”.	Hot line washing is applicable for porceline equipments.	Bid condition is clear
256	22.1. Current Transformers			Attached are the offered CT VT parameters in line with the SLD only received request customer to confirm the same.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
257	22.1. Current Transformers		For Tariff metering core (0.2s) of current transformer separate (dedicated) secondary terminal box shall be provided with required sealing arrangements / facility as per requirement of concerned authorities.	As per tender SLD Received we understand that there is no GIS Tariff metering is mentioned, hence the same is excluded from SEIL GIS scope of supply, request customer to clarify the same.	Bid condition is clear
258	IV. Surge Arresters		IV. Surge Arresters	Not applicable to GIS.	Bid condition is clear
259	Power Transformers		Ambiguity found berween technical specifications and BOQ descrition	Please clarify whether ONAN/ONAF/OFAF or ONAN/ONAF cooling is required	Bid condition is clear
260	General		6_QTS_QAP_and_FQP	All the tests shall be in line with the IEC and as per attached QAP. Request customer to confirm the same. No any additional tests are considered.	Bid condition is clear
261	General		Discrepancy observed between the SLD & BOQ	We are offering in line with the Tender SLD received, Attached is the Technical Offer request customer to confirm.	Bid condition is clear
	400kV PGCIL ORAI GIS Extension				
262	General		Supply	Any supply of consumables, O-rings, bolts, and other materials, etc. for existing GIS shall be in EPC Scope	Bid condition is clear
263	General		Supply	M/s SEIL Scope shall be limited to Supervision activity during opening / closing / extension of another make of GIS. All the sourcing / arrangements for (above SL no. i) requirement shall be in EPC Scope.	Bid condition is clear
264	General		Details of existing GIS	As per inputs recieved we understand that the existing GIS is of NHVS make for PGCIL Orai Substation. Entire dimension details shall be made available by EPC from existing GIS manufacturer as per IEEE C37.122.6 at the time of receipt of Purchase order. - Complete End module details(Existing GIS dimensions ,conductor dimensions , mounting PCD, O-ring details, Plating/ Coating details if any) - Rupture disk detail - Density monitor details - SF6 Gas pressure details of end module (ABS./ Rel.) - Conductor Material detail - Design pressure of enclosure	Bidder needs to conduct site visit for further information. .
265	General		Details of Existing GIS	Existing GIS Gas SLD, Section and Plan View.	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.
266	General		VFTO study	VFTO study shall be excluded from SEIL GIS scope of supply.	Bid condition is clear
267	General		Availability of existing GIS supervisior + Tools to operated existing GIS	We request customer to kindly make available existing GIS supervisior at site for entire duration of coupling of present GIS to existing GIS. Also the cables from existing LCC to present scope LCC. Tools, consumables, spares required to open existing GIS shall be scope of customer/Existing GIS OEM. Any charges occuring on account of Existing GIS supervisor and tools shall be borne by purchaser. Request customer to kindly confirm the same.	Bid condition is clear
268	General		Shutdown	A shutdown plan of the existing substation is mandatory and is required for a maximum of 3 times. A detailed schedule can be furnished during the time of project execution.	Bid condition is clear
269	General		Warranty	Existing GIS at site is governed by Warranty, the warranty provisions of existing GIS shall be taken care by the Purchaser / End User and not by GIS OEM performing extension activity for present scope. Kindly confirm	Bid condition is clear
270	General		Details of existing GIS at site	EPC shall provide the complete interface (extension) module drawing of existing GIS which is to be extended, strictly in accordance with IEEE C37.122.6	Bid condition is clear
271	General		CT Data	Attached is the CT datasheet inline with the PGCIL any changes to the scope shall have time & price implications.	Bid condition is clear
272	General		Layout	Attached is the proposed layout, request customers concurrence on same, any changes to layout shall have time & price impications.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
273	General			We have enclosed indicative layout received as part of tender document. GIB bends are governed based on that layout only. Additional bends, road crossings shall have time and price implications.	Bid condition is clear
274	General			Supply of earthing material, foundation bolts, etc is excluded from scope.	Bid condition is clear
275	General		6_QTS_QAP_and_FQP	All the tests shall be in line with the IEC and as per attached QAP. Request customer to confirm the same. No any additional tests are considered.	Bid condition is clear
276		**Clause 4.3 Disconnector Technical Specification**	The disconnectors shall be of M2 class and suitable for Bus Transfer Current Switching duty.	"Clause No. 4.3 The disconnectors shall be of M2 class and suitable for Bus Transfer Current Switching duty. " However, please note that for 400kV and above, the general practice in Indian Grids is to use a One and a Half Breaker Scheme, where bus transfer switching duty is not required for 400kV due to the inherent properties of that scheme/layout. **Kindly confirm whether the bus transfer switching duty is required or not**	Bid condition shall prevail
277		**GIS**	As per discussion with Pre-Bid meeting Please provide the below details required of exiting GIS.	1. Detailed inspection of the end module from where the extension is planned, along with photographs and videos.	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.
278				2. Gas pressure of the existing end module.	
279				3. Confirmation of whether the end module has a gas-tight bushing.	
280				4. Rating plate details of the existing GIS.	
281				5. Busbar-to-busbar distance in both X and Y directions.	
282				6. Availability of any spare materials such as bushings, male/female conductors, etc.	
283				7. Space availability for the proposed extension.	
284				8. End module detailed drawings, along with gas pressure.	
285				9. Availability of detailed drawings of the end module at the customer site and GSLD, Section, Plan drawings.	
286		**Drawings**	We need Countour drawings for 3 No. of PSS		Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
287	ROW	GCC 10.2 & 165		Please confirm that all required Right of Way (ROW) and legal clearances for substations will be arranged by Employer and the contractor will not be held responsible for any land acquisition or obstruction issues.	Bid condition is clear
288	ESCROW MECHANISM	SCC 9.0 & 254		Please confirm our understanding that the establishment of an ESCROW Account is not a mandatory requirement for this project.	Bid condition is clear
289	Funding	-		Kindly provide details of the project funding arrangement, including the source of funds	Bid condition is clear
290	Site Visit Report	Attachment-1		Request clarification on whether a Site Visit Report must be submitted by bidders.	Bid condition is clear
291	Bay Extension at CTU Substation	TRANCHE-1 Pooling Substation SECTION - A General Technical Specification		Considering that the Bay Extension Works are required to interface with the existing POWERGRID substation, bidders request the following information: Existing GIS make. Existing SAS, FOTE and Busbar Protection System make. Existing GIS Hall details, including available space and proposed GIS placement within the present project scope.	Bidder needs to conduct site visit for further information. Further, PGCIL Sub station SLD is provided in the tender document.
292	O&M	SCC 5.0 (E) & 252		Kindly Clarify the scope of O&M	Please refer Corrigenedum-2
293	General	General	Site Contact person details	We intend to conduct a site survey to better understand the project requirements. To facilitate this, Please share the contact details of the E3:F3 responsible.	Concerned site person: Name - Sh. Vinod Rai Contact No: 9521097989

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
294	General	General	Earth mat layout	Bidder request to provide existing eartmant layout of 765/400kV Ait Orai CTUIL GIS Substation	Bidder needs to conduct site visit for further information.
295	General	General	cable trench layout	Bidder request to provide existing cable trench layout of 765/400kV Ait Orai CTUIL GIS Substation	Bidder needs to conduct site visit for further information.
296	General	General	GIS	We request to kindly share the existing 400kV GIS make at Ait Orai CTUIL GIS Substation	Bidder needs to conduct site visit for further information.
297	General	General	EOT Crane	Bidder request to provide existing 400kV EOT crane capacity & details Ait Orai CTUIL GIS Substation.	Bidder needs to conduct site visit for further information. .
298	Tender Document	clause 5.2.7, page -482	CRP & SAS	Bidder request to share the existing 400kV CRP & SAS make of 765/400kV Ait Orai CTUIL GIS Substation	Bidder needs to conduct site visit for further information.
299	Tender Document	Part-A.1, Sr. no.-13, page - 325 Annexure-B, Part-1, Sr. no.-13, page - 506	Part-A.1:-33kV Capacitor Bank (1 X 16 MVAr) equipment and all accessories - 7Nos. Part-1:-33kV Capacitor Bank (28 MVAr) equipment and all accessories required as per technical specification - 4Nos	We understanding that, as per given 33kV feeder list SLD, 4 Nos of 28 MVAR capacitor banks to be considered for supply of total 112MVAR at Madhogarh PPS. Kindly clarify.	Please refer Corrigendum-2
300	Tender Document	clause 2.2.1, Sr. no.-19, page - 443 clause 2.1, page -1847 Part-2, Part-A, Sr.no:3, Page:508	clause 2.2.1:-Line-In Feeder and Line-Out Feeder from Orai shall have Standby ABT energy meter Clause-2.1:-Orai: Line-In Feeder from Orai shall have Main and Standby ABT energy meters Line-Out Feeder from Orai shall have a Standby ABT energy meter. Part-A:- Tentative BOQ Description 400 kV, two core, Ratio :2000-2500/1A,63kA/1sec-To Tariff Meter-7No. 400 kV, six core, Ratio :2000-2500/1A,63kA/1sec-to Main protection, control and general metering other tools & tackles and all accessories required as per technical specification-7No.	We Understand that for 400KV line in Main and check meter to be considered and 400kV line out only stand by meter to be considered as pe clause 2.1 page 1847 and SLD. Kindly clarify the bidder undestanding.	Bid condition is clear
301	Tender Document	Part-2, Part-A, Sr.no:3, Page:508 SLD, Page:2119	Part-A:- Tentative BOQ Description 400 kV, two core, Ratio :2000-2500/1A,63kA/1sec-To Tariff Meter-7No. 400 kV, six core, Ratio :2000-2500/1A,63kA/1sec-to Main protection, control and general metering other tools & tackles and all accessories required as per technical specification-7No.	We Understand that 6 Nos of 2 core 400kV metering CTs are required for ABT metering in line bays, 15 Nos of 6core 400kV protection CTs are requried for Line, Transformer & Tie bays at Orai PPS. Kindly Confirm.	Bid condition is clear
302	Tender Document	clause 6, page -998	Madhogarh 33kV Feeder list	1. Bidder undertood that 33kV Switchgear Feeder list should be considered as per Tender Document Feeder List as given clause 6, page 998. Please Confirm. 2. 28MVAR Capacitor Banks should be Consider for Transformer 1 & 3 and Dynamic Reactive Power Conpensator is to be consider for Transformer-2. Please Confirm.	Bid condition is clear
303	Tender Document	Clause:-XXVI, 2.1, Sr no:-3, Page:1875 Part-2, Part-A, Sr.no:30, Page:511	Clause:XXVI:-Eight (08) nos of PMU shall be provided for 400 kV system (One for Transmission line, Two (02) for Power Transformer, One (1) for Bus coupler and (2) for Bus PT's at the outgoing transmission line feeder at the sending end of the BSUL 400kV pooling substation and another one (01) no. optional requirement at the receiving end of the CTUIL / CTU 400kV substation. Part-2:-Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI	Bidder understood that PMU should be Provided for 400kV 2no.s for lines, 1no. for transformer, 2 nos. for busbar at Orai PSS. Therer is no bus coupler bay in the Orai PSS as One and half breaker scheme is used. Kindly clarify the bidder understanding.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
304	Tender Document	Clause:-XXX, 2.1, Sr no:-3, Page:1362 Part-1, Sr.no:33, Page:507	Clause:XXX:-Eight (08) nos of PMU shall be provided for 400 kV system (One for Transmission line, Two (02) for Power Transformer, One (1) for Bus coupler and (2) for Bus PT's at the outgoing transmission line feeder at the sending end of the BSUL 400kV pooling substation and another one (01) no. optional requirement at the receiving end of the CTUIL / CTU 400kV substation. Part-1:-Phasor Measurement unit (PMU) at 400kV bay and all accessories required as per technical specification of Section B	As per given specifications, PMU should be Provided for(One for Transmission line, Two (02) for Power Transformer, One (1) for Bus coupler and (2) for Bus PT's at the outgoing transmission line feeder at the sending end of the BSUL 400kV pooling substation at Madhogarh PSS. Whereas it is menioned in CEA guidelines for PMU that PMU to be considered in all transmission line bays and Busbar. 1. Please clarify that whether PMU should be considered at LV or HV side of 400kV transformer bays. 2. Please clarify whether PMU are to be consdiered as per NHPC specification or CEA guidelines	Bid condition is clear
305	Tender Document	Clause:-XXX, 2.1, Sr no:-3, Page:1362 Part-1, Sr.no:33, Page:507	Clause:XXX:-Eight (08) nos of PMU shall be provided for 400 kV system (One for Transmission line, Two (02) for Power Transformer, One (1) for Bus coupler and (2) for Bus PT's at the outgoing transmission line feeder at the sending end of the BSUL 400kV pooling substation and another one (01) no. optional requirement at the receiving end of the CTUIL / CTU 400kV substation. Part-1:-Phasor Measurement unit (PMU) at 400kV bay and all accessories required as per technical specification of Section B	As per given specifications, PMU should be Provided for 4(One for Transmission line, Two (02) for Power Transformer, One (1) for Bus coupler and (2) for Bus PT's at the outgoing transmission line feeder at the sending end of the BSUL 400kV pooling substation at Madhogarh PSS. Please clarify the PMU scope for the transformer bays at Madhogarh PSS. The scope mentions 3 transformers, whereas the description refers to only 2 power transformer bays. Should we consider 3 PMUs (one on the HV side of each transformer), or only 2 PMUs as per the description?	Bid condition is clear
306	Tender Document	Clause:-XXVI, 2.1, Sr no:-3, Page:1875 Part-2, Part-B, Sr.no:30, Page:516	Clause:XXVI:-Eight (08) nos of PMU shall be provided for 400 kV system (One for Transmission line, Two (02) for Power Transformer, One (1) for Bus coupler and (2) for Bus PT's at the outgoing transmission line feeder at the sending end of the BSUL 400kV pooling substation and another one (01) no. optional requirement at the receiving end of the CTUIL / CTU 400kV substation. Part-2:-Phasor Measurement Unit (PMU) and other tools & tackles and all accessories required as per technical specification of Section-B clause- XXVI	Bidder understood that PMU should be Provided for 400kV 1no.s for lines, 1no. for transformer at Pathrahi PSS. Please Confirm.	Bid condition is clear
307	Tender Document	PMU	PMU	Bidder Understood that PMU should be considered at CTUIL Remote end Extension line Bay. Please Confirm.	Bid condition is clear
308	Tender Document	clause 2.2.1, Sr. no.-20, page - 443 Clause -XXV, 2.1, Page-1866	Clause:2.2.1:-Each bay shall have 01 No. of PQM for Orai & Pathrahi PSS Clause:2.1:-The Contractor shall supply: a. One (1) numbers PQM at Line-Out Bay in Orai PSS, b. One (1) numbers PQM at Line-Out Bay in Pathrahi PSS, c. One (1) numbers PQM at Orai PSS for transformer LV side - Total 2 Nos d. One (1) numbers PQM at Pathrahi PSS for transformer LV side - Total 2 Nos	Bidder understood that PQM should be considered at Line Bays and Transformer LV side only for Orai & Pathrahi PSS. Please Confirm.	Bid condition is clear
309	Tender Document	clause 2.1.2, Sr. no.-19, page - 436	Power Quality Meters (PQM) at Madhogarh PSS end and CTUIL Substation end	Bidder understood that PQM should be considered at Line Bays ,both HV&LV sides of Transformer for Madhogarh PSS. Please Confirm.	Bid condition is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
310	Tender Document	clause 4.2.4, page - 732	400 kV Future Bay shall comprise: (a) One (1) three phase SF6 insulated circuit breaker (3150A, 63kA for 1s) complete with spring operated mechanism. (b) Six (6) multi ratio, multi core single phase current transformers. (c) Three (3), three phase, single pole group operated disconnecting switches, complete with manual and motor driven operating mechanism. (d) Four (04), three phase, single pole group operated safety earth switches, complete with manual and motor driven operating mechanism. (e) GIS duct with gas monitoring devices, barriers, pressure switches, UHF PD Sensors, support etc. as required (f) One (1) Local control cubicle.	Kindly clarify wheather 400kV Future bay modlue at 765/400kV Ait Orai CTUIL substation should be considered in present scope or not.	Bid condition is clear
311	Tender Document	Pathrahi SLD, Page-2120 Pathrahi Electrical Layout, Page-2128	SLD Electrical Layout	2 no. of Isolators are given in Pathrahi SLD and 1 no. of Isolator is mentioned in Pathrahi Electrical Layout . Kindly clarify wheather SLD or Electrical Layout should be followed.	Bid condition is clear
312	Tender Document	Orai SLD, Page-2119 Orai Electrical Layout, Page-2127	SLD Electrical Layout	9 No.s Double break Isolators with double earth switch & 6 Nos. Double break Isolators with single earth switch are given in Orai SLD but in Orai Electrical Layout 4 Nos. Centre break Isolators, 4 No.s Double break Isolators with double earth switch & 7 Nos. Double break Isolators with single earth switch are shown.Kindly clarify wheather SLD or Electrical Layout should be followed.	Bid condition is clear
313	Tender Document	General	Equipment Ratings	For the Switchyard equipments current ratings in SLD are different from Technical Specifications of tender documents. Kindly confirm which current ratings should be consider.	Bid condition is clear
314	Tender Document	Part-A, Sr. no.-1, page - 408 Clause -12.1, Sr. no.9, Page-1517	Part-A:-340 MVA, 400/33/33kV, three phase, three winding, ONAN/ONAF/OFAF, YNyn0yn0, OLTC Power Transformer bushing CTs, first fill oil, tools & tackles and all accessories required as per technical specification Clause 12.1:-Type of cooling-ONAN/ONAF	Kindly clarify the type of cooling required for Transformer at Orai PSS.	Bid condition is clear
315	Tender Document	Part-B, Sr. no.-1, page - 513 Clause -12.1,Sr. no.9, Page-1517	Part-B:-340 MVA, 400/33/33kV, three phase, three winding, ONAN/ONAF/OFAF, YNyn0yn0, OLTC Power Transformer bushing CTs, first fill oil, tools & tackles and all accessories required as per technical specification Clause 12.1:-Type of cooling-ONAN/ONAF	Kindly clarify the type of cooling required for Transformer at Pathrahi PSS.	Bid condition is clear
316	Tender Document	Part-1, Sr. no.-1, page - 505 Clause -12.1,Sr. no.9, Page-723	Part-1:-250 MVA, 400/33/33kV, three phase, three winding, ONAN/ONAF/OFAF, YNyn0yn0, OLTC Power Transformer bushing CTs, first fill oil, tools & tackles and all accessories required as per technical specification Clause 12.1:-Type of cooling-ONAN/ONAF	Kindly clarify the type of cooling required for Transformer at Madhogarh PSS.	Bid condition is clear
317	Tender Document	clause 4.1.1, Sr no:a, page - 728 Clause 1.3, part-1, Page-431	Clause-4.1.1:-Three (03) individual passive bus bar enclosures running the length of the switchgear to interconnect each of the circuit breaker bay modules in One and a half breaker system. Clause-1.3:-Busbar Scheme - Double bus with Single breaker	kindly clarify the busbar scheme for 400kV GIS Madhogarh PSS.	Bid condition is clear
318	General	General		Bidder request to clarify whether we can use spare feeder in 33kV switchgear for Aux transformer connection for or separate feeder need to be considerd for Aux transformer.	Bid condition is clear
319	General	General	FOTE Make	Bidder request to provide existing FOTE make of 400kV for 765/400kV Ait Orai CTUIL GIS Substation.	Bidder needs to conduct site visit for further information.
320	General	General	PLCC Make	Bidder request to provide existing PLCC make of 400kV for 765/400kV Ait Orai CTUIL GIS Substation.	Bidder needs to conduct site visit for further information.

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
	Madhogarh Pooling substation				
321	Tender_Document	2.1 Scope of Madhogarh Pooling substation Pg No 439	1.Site related investigation a)Topography Survey b)Geotechnical investigation	Bidder request to share the Geo-Technical Investigation Report and Contour Survey data for our reference and further engineering.	Preliminary topographical survey already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
322	Tender_Document	2.1 Scope of Madhogarh Pooling substation Pg No 439	2.Site Development work c.compound wall with Gate	Please verify the type of boundary wall around the PSS Plot boundary i.e Prestressed precast compound wall,Brickwall or chain link fence only.	Bid condition is clear
323	Tender_Document	2.1 Scope of Madhogarh Pooling substation Pg No 439	2.Site Development work d.Internal Road and culverts	Bidder request to provide referance drawing for Internal Road and culverts.	Bid condition is clear
324	Tender_Document	2.1 Scope of Madhogarh Pooling substation Pg No 439	2.Site Development work e. Storm water drains and interconnection to outside main drains.	Bidder request to provide referance drawing for IStorm water drains and interconnection to outside main drains.	Bid condition is clear
325	Tender_Document	2.1 Scope of Madhogarh Pooling substation Pg No 440	**4.Building and civil Work** a. Foundation for all substation structures / masts / gantries / bus duct of 400 kV Pooling Substation. b. Prefab building with 3.0m high brick wall from FFL for 400kV GIS bays with LCC including EOT crane & ventilation, illumination and other associated works complete in nature. c. Prefab / RCC Substation control building with all facilities like toilets, septic tank, soak pit, water supply, plumbing, ventilation, illumination and other associated works complete in nature. d. 33kV Switchgear Buildings of Prefab / RCC e. RCC works (Foundations, trenches, etc.) for 33kV Switchgear Buildings (PEB). h. Transformer foundations with soak pit. i.NIFPS Pit, Walkways, Support structures for all the equipment. l.RCC Fire wall between the transformers (if required).	Bidder request to provide the drawing for a. Foundation for all substation structures / masts / gantries / bus duct of 400 kV Pooling Substation. b. Prefab building with 3.0m high brick wall from FFL for 400kV GIS bays with LCC including EOT crane & ventilation, illumination and other associated works complete in nature. c. Prefab / RCC Substation control building with all facilities like toilets, septic tank, soak pit, water supply, plumbing, ventilation, illumination and other associated works complete in nature. d. 33kV Switchgear Buildings of Prefab / RCC e. RCC works (Foundations, trenches, etc.) for 33kV Switchgear Buildings (PEB). h. Transformer foundations with soak pit. i.NIFPS Pit, Walkways, Support structures for all the equipment. l.RCC Fire wall between the transformers (if required).	Bid condition is clear
	Orai and Pathrhi Pooling substation				
326	Tender_Document	2.2 Scope of works for the Orai and Pathrhi Pooling substation Pg 446	a)Site retlated investigation b)Topography Survey c)Geotechnical investigation	Bidder request to share the Geo-Technical Investigation Report and Contour Survey data for our reference and further engineering.	Preliminary topographical survey and geo tech survey are already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
327	Tender_Document	2.2 Scope of works for the Orai and Pathrhi Pooling substation Pg 446	d)Site Development Work e) Site grading includes soil stabilization and slope protection	Please confirm the FGL and share the contour survey for proposed substation location for detail estmation of d)Site Development Work e) Site grading includes soil stabilization and slope protection	Preliminary topographical survey and geo tech survey are already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
328	Tender_Document	2.2 Scope of works for the Orai and Pathrhi Pooling substation Pg 447	g) PSS Compound wall with gates	Please verify the type of boundary wall around the PSS Plot boundary i.e Prestressed precast compound wall,Brickwall or chain link fence only.	Bid conditon is clear
329	Tender_Document	2.2 Scope of works for the Orai and Pathrhi Pooling substation Pg 447	h).Internal Road and culverts i. Storm water drains and interconnection to outside main drains.	Bidder request to provide referance drawing for h).Internal Road and culverts i. Storm water drains and interconnection to outside main drains.	Bid conditon is clear

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	BSUL comments
330	Tender_Document	2.2 Scope of works for the Orai and Pathrhi Pooling substation Pg 447	m. RCC Control building with all facilities like toilets, septic tank, soak pit, water supply, plumbing, ventilation, illumination and other associated works complete in nature. n. RCC works (Foundations, trenches, etc.) for 33kV Switchgear Buildings (PEB) with HVAC system.	Bidder request to provide referance drawing m. RCC Control building with all facilities like toilets, septic tank, soak pit, water supply, plumbing, ventilation, illumination and other associated works complete in nature. n. RCC works (Foundations, trenches, etc.) for 33kV Switchgear Buildings (PEB) with HVAC system.	Bid conditon is clear
331	Tender_Document	2.2 Scope of works for the Orai and Pathrhi Pooling substation Pg 447	p. Transformer foundations with soak pit. q. NIFPS Pit, Walkways, Support structures for all the equipment. r. Civil & structural base plate / channel arrangement for all the panels. s. Rail cum road foundations for transformer. t. RCC Fire wall between the transformers (if required). u. Transformer Burnt oil pit. v. RCC Cable trenches. W. Transformer Oil Storage Shed x. High Mast and Street Lighting Foundations	Bidder request to provide referance drawing p. Transformer foundations with soak pit. q. NIFPS Pit, Walkways, Support structures for all the equipment. r. Civil & structural base plate / channel arrangement for all the panels. s. Rail cum road foundations for transformer. t. RCC Fire wall between the transformers (if required). u. Transformer Burnt oil pit. v. RCC Cable trenches. W. Transformer Oil Storage Shed x. High Mast and Street Lighting Foundations	Bid conditon is clear
332		Civil Design	Detailed design by Contractor	Soil 'Investigation Report (SMC/SIR) is not provided. Kindly provide the detailed geotechnical investigation report for all three substations. award, quantity variation due to actual If the report is issued after soil conditions shall be paid separately	Preliminary topographical survey and Geo technical Investigation reports are already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
333		Civil Design	Foundation design by Contractor	|SBC and groundwater level are not available Kindly confirm Safe Bearing Capacity ground water level, rock profile and soil classification for each location	Preliminary topographical survey and Geo technical Investigation reports are already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
334		Layout	Plot layout enclosed.	Contour survey drawing is not available Kindly provide AutoCAD topographical survey with coordinates, contour levels and benchmarks.	Preliminary topographical survey and Geo technical Investigation reports are already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
335		Civil	Earthwork scope.	Existing and finished ground levels are not specified Kindly provide existing RL, finished formation level and grading philosophy	Bid condition is clear . Bidder needs to conduct site visit for further information.
336		Road	Internal roads included	Kindly provide pavement loading criteria and typical cross-sections.	Bid condition is clear . Bidder needs to conduct site visit for further information.
337		Boundary wall	Boundary wall included in scope.	Type of boundary wall is not specified Kindly clarify whether baundary wall shall be RCC/Brick masonry or PEB/chain-link fencing. Also provide standard drawings.	Bid condition is clear . Bidder needs to conduct site visit for further information.
338		Building	Building design by contractor.	|Architectural drawings are not enclosed Kindly provide conceptual architectural contractor. enclosed. drawings and minimum space requirements for all buildings	Bid condition is clear . Bidder needs to conduct site visit for further information.
339		Civil	CIVIL reference drawing	Please 'provide tender purpose civil drawing Kindly provide the tender purpose civil drawing for Cable tench , SPR building,GIS building, Transformer foundation switchyard equipment foundation Gantry tower foundation , Road, Drain,fire wall for transformer, Chain link fencing for switchyard, Store building,car parking shead etc.	Bid condition is clear . Bidder needs to conduct site visit for further information.
340		Structural	Design by contractor	Wind and seismic parameters are not clearly defined Kindly specify design wind speed, seismic zone, importance factor and applicable codes.	Bid condition is clear . Bidder needs to conduct site visit for further information.
341		Utilities.	Site utilities.	Existing underground services are not indicated . Kindly provide details of underground . utilities, HT/LT lines and pipelines.	Bid condition is clear . Bidder needs to conduct site visit for further information.
342		Construction	Temporary Power	Kindly clarify availability of construction power and applicable tariff.	Bid condition is clear . Bidder needs to conduct site visit for further information.

Sl.No.	Volume	Clause No.	Tender Provision	Queries of Prospective bidders	
				Bidders Clarification	**BSUL comments**
343		Engineering	Vendors Approvals	Multiple approval cycle may affect completion. Kindly, review comments to one consolidated cycle to avoid delays.	Bid condition shall prevail
344		Earthing	Earthing Design	Soil sensitivity report is not enclosed Kindly provide the soil sensitivity test report for accurate earthing design.	Preliminary topographical survey and Geo technical Investigation reports are already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document
345		Civil	General	Kindly clarify whetehr pile foundation is envisaged at any location. If required due to actual soil conditions, additional payment may be considered.	Bid condition is clear.
346		Civil	General	Dewatering requirements cannot be assessed without groundwater data. Additional dewatering due actual site conditions may be considered.	Bid condition shall prevail
347		Civil	General	Kindly clarify responsibility for disposal of surplus excavated earth. Disposal location and lead distance may be confirmed.	Bid condition is clear.
348		Buildings	GIS Buildings	Kindly provide HVAC design criteria for control room and GIS building. Design basis may shared.	Bid condition is clear.
349		Buildings	Building	Kindly clarify whether false flooring is required in all control rooms. Scope confirmation requested.	Bid condition is clear.
350		Buildings	Building work	Fire rating requirements of doors, cable openings and partitions are not available. Specifications may be provided.	Bid condition is clear.
351		Drainage	General	Kindly provide rainfall intensity adopted for drainage design. Design input required.	Bid condition is clear.
352		Construction	General	Kindly clarify whether labour camp inside project premises is permitted. Site arrangement confirmation requested.	Bid condition is clear.
353				**Request for site investigation reports to facilitate accurate bid preparation** Geotechnical Investigation Report Soil Investigation Report Topographical Survey Report/Drawings Hydrology Study Report KMZ file Any other relevant site survey data available for the project location	Preliminary topographical survey and Geo technical Investigation reports are already provided in the tender document. Any additonal survey shall be in the scope of the Bidder as per scope defined in the tender document