CORRIGENDUM -4 FOR NIT NO: CMC/BR/25-26/FK/PR/KG/1310 for Survey, Design, Supply, Erection, Installation, Testing, Commissioning, Handing over of 02 Nos GIS Grid Substations along with associated Civil work (Package-A) and 09 Nos Cable In-feed/Laying works (Package-B) on Turnkey Basis

CORRIGENDUM DATE: 19-12-2025

Sl. No.	Description	Status
1	Make of 11kV & 33kV Panels; Make & Model of Relays	Attached as Annexure-1
2	Scope of Maintenance Tools & Tackles & Specs of Three Phase Secondary Injection Kit	Attached as Annexure-2
3	Technical Specifications of Bus Duct	Attached as Annexure-3
4	Technical Specifications of BPI	Attached as Annexure-4
5	Revised Technical Specifications of Training & Inspection	Attached as Annexure-5
6	Technical Specs of SCADA ADAPTATION AND INTEGRATION SERVICES	Attached as Annexure-6
7	Pre-bid queries	Attached as Annexure-7
8	Due Date for Bid submission	Due date for bid submission has been extended up to 07-01-2026 1530 Hrs

ANNEXURE –1

(33kv / 11Kv Panels)

I. In 11Kv and 33Kv panels following make to be added.
   - L& T
   - Stelmec

II. Relays shall be
   - Siemens - Siprotec series 5
   - Schneider – P5 series
   - GE- MICOM143
   - ABB-REX615 with top cover

ANNEXURE-2

Maintenance Tools and Tackles:

Following supply shall be in scope of Vendor for package as mentioned in addition to maintenance tools and tackles mentioned in individual equipment specifications, In the event of duplication or repetition between the package requirements and the individual equipment specifications, the items shall be supplied **only once**, and the **most stringent requirement (higher quantity or stricter specification)** shall govern.

For Molarband Sub-station :-

S. No.	Item Description	Unit	Qty	Model	Make
1	80 KV DC hi-pot	No	1		Quadrant, Jupiter, HVI, USA
2	Oil BDV Kit	No	1	Qoits-100/ Quadrant	veer, baur, re, quadrant
3	Clamp meter	No	1	CMP-1000/ Sonel	Sonel, Megger, Fluke
4	Multimeter	No	1	CMM-20/ Sonel	Sonel, Megger, Fluke
5	IR Tester	No	1	MIC-5001/ Sonel	Sonel, Megger, Fluke
6	Contact Resistance Meter	no	1	MVT-100B/ Crest	Crest, Megger, DV Power
7	CB Timing Kit	No	1	SCT-1500/ Crest	Crest, Megger, DV Power
8	Discharge Rod	No	1	VMR-45L/ Ritz	Ritz, Honeywell, Catu
10	Pneumatic Ratchet Sets	No	3		BOSCH
11	Safety gloves	No	2		Honeywell
12	Safety helmet	No	2		Karam/Honeywell
13	Safety shoes	No	2		BATA/Udhyogi/Liberty

For Vamasundari Sub-station :-

1. Three phase Secondary Injection kit (as per spec attached in annexure 3)

Note: Approval of Model no and make wherever not defined shall be done at the time of Bid evaluation

BSES

TECHNICAL SPECIFICATION OF THREE PHASE SECONDARY INJECTION KIT

Specification no – BSES-TS-42-SPSIK-R0

Rev:		00
Date:		10.12.2025
Pages		09
Prepared by	Aditya Kumar Singh	
Reviewed by	Varun Ahuja	
Approved by	M. K. Jain	

Record of Revision

Sl No.	Revision No	Item/Clause No.	Nature of change	Approved by

1.1 RELAY TEST KIT

1.1.1 General

Each relay test kit shall comprise the equipment as detailed here under.
The relay test kit shall be a computer based fully automatic type and shall have following features. Relay test kit should be already supplied to our utility. Manufacturer should have a calibration set-up and service centre in India. Also, manufacturer would be having registered office for technical support in India. Make- Omicron, Megger, Doble
1 No. i7 laptop to be provided along with kit with weather proof bag preferably of Samsonite make.
Lifetime software(with updates) to be provided for 10 Nos. users.

1.2 Functional requirement

The equipment is required functionally to test the following electromechanical, solid state and numerical protection relays.

- Distance relays (ground and phase distance)
- Over current relays (directional and non-directional, definite time and inverse time)
- Frequency relays (over-and under)
- Voltage relays (over and under)
- Power relays (directional)
- Differential relays (including harmonic restraint feature)
- Bus bar protection relays (biased low/high impedance)
- Other associated protection relay functions: auto-reclose function, power swing, Sync- check, etc.
- Single and three phase transducers (voltage, current, power (W, VA, VAR), phase and frequency)

1.3 Hardware

Specification General

All voltage and current generators are continuously and independently adjustable in amplitude, phase and frequency
All voltage and current generators must generate signals with at least a 20kHz sampling rate
All specifications must be guaranteed with a confidence level of 99% and be valid for at least one year The product must offer a minimum of 7 total analog output channels (without Aux. DC)
The product must offer convertible current and voltage generators with at least 4 channels The product must offer high current generators with at least 3 channels
The product must be capable of outputting 270 A single-phase.
Generator requirements, convertible current and voltage generators
The frequency range of convertible current and voltage generators must be 0 ... 5 kHz

Voltage mode

4-phase AC (L-N): 4 x 0 … 300 V; 4 x 90 W at 300 V
3-phase AC (L-N): 3 x 0 ... 300 V; 3 x 115 W at 300 V
1-phase AC (L-L): 1 x 0 ... 600 V; 1 x 225 W at 600 V
"Minimum accuracy requirements for the voltage generators are (at 100 Hz or below):
error < 0.16 % rd. + 0,03 % rg. "
Minimum phase accuracy requirements for the voltage generators is 0.05° The total Harmonic Distortion (THD+N) shall not exceed 0.05 % at full scale The adjustable resolution for the voltages (DC) must be: < 1mV below 75V

Current mode

4-phase AC (L-N): 4 x 0 … 30 A ; 4 x 160 W at 12 A
3-phase AC (L-N): 3 x 0 ... 30 A; 3 x 200 W at 15 A
1-phase AC (L-L): 1 x 0 ... 30 A; 1 x 400 W at 15 A

1-phase AC (LLL-N): 1 x 0 ... 90 A; 1 x 510 W at 39 A
Current output of 30A per channel must be possible for a minimum of 2 s and 15 A continuous (>15 min) "Minimum accuracy requirements for the convertible current generators are (at 100 Hz or below): error < 0.16 % rd. + 0,03 % rg. "
Minimum phase accuracy requirements for the convertible current generators is 0.12°
The total Harmonic Distortion (THD+N) shall not exceed 0.05 % at full scale
The adjustable resolution for the currents (DC) must be: < 20 µA below 1.25 A

Generator requirements, high current generators

The frequency range must be 0 ... 3 kHz
3-phase AC (L-N): 3 x 0 ... 60 A; 3 x 350 W at 30 A
1-phase AC (L-L): 1 x 0 ... 60 A; 1 x 700 W at 30 A
1-phase AC (LLL-N): 1 x 0 ... 180 A; 1 x 1000 W at 75 A
Current output of 60A per channel must be possible for a minimum of 2 s and 30 A continuous (>15 min) "Minimum accuracy requirements for the convertible current generators are (at 100 Hz or below):
error < 0.18 % rd. + 0,03 % rg. "
Minimum phase accuracy requirements for the high current generators is 0.25°
The total Harmonic Distortion (THD+N) shall not exceed 0.05 % at full scale
The adjustable resolution for the currents (DC) must be: < 20 µA below 1.25 **A**

General requirements

The weight of the product must not exceed 12.9 kg

General HW requirements

Self diagnostics upon each start up with automatically created Hardware Check File
All current and voltage outputs must be fully overload, short-circuit and over temperature proof and protected against external high-voltage transient signals and over temperature.
"For voltage, current or AuxDC outputs an LED (per function group) and a configurable beeper (on/off/ one beep or intermittant tone) must indicate two different states on the front plate of the device:

- amplifiers on
- overload

AuxDC must in addition warn the opearator visually in case a default AuxDC voltage is set. The warning must persist until the test set is actively outputting the signal."
When overload or error occur visual alarms must be provided but outputs must not switch off. It must be possible to configure audio alarms with the control PC
Amplifier groups, inputs, and outputs must be galvanically isolated from each other and from chassis/ground
The testing device must have an intelligent fan management (i.e. reduced fan activity if the device is on stand by) in order to keep the fan noise as silent as possible
The Operation temperature range must be between 0 and 50 °C
The device must be able to operate between 5% and 95% of relative humidity non-condensing
The device must be able to detect internal moisture and automaticallly initiate a self-drying procedure The device without handles must not exceed 22 liter of volume
Nominal input voltage must be between 100 and 240 Vac at 50 or 60 Hz and connection must be via standard AC socket (IEC 60320)

"PC Connection must be possible through:

- Three PoE Ethernet ports
- USB-C
- wireless via Wi-Fi (device must provide an USB type A port for insertion of the Wi-Fi stick)" The USB-C must have Power Delivery (PD) functionality with a minimum of 45 W

The device must be able to act as PTP grandmaster and slave clock and support Utility profile (IEC/IEEE 61850-9-3) as well as Power profile (IEEE C37.238)

Auxiliary DC supply

The auxiliary DC supply must provide a power of 120 W for 2 s and 50 W continuously with the following output range: 12 ... 264 VDC
The auxiliary DC supply error shall not exceed 5% of set value +0.25V (guaranteed)
Binary/Analog inputs
Minimum 10 multifunctional binary/measuring inputs are required
Input characteristics 0 ... ± 600 Vdc threshold or potential free
Measuring ranges 10 mV/ 100mV/ 1 V/ 10 V/ 100 V/ 600 V are
required
Sampling rate 10kHz or 40 kHz for analog measurements, 10 kHz in binary
mode Max. measuring time: infinite
Each input must be galvanically isolated against each other and against DC inputs and binary outputs (600 V CAT II)

Binary outputs

4 potential-free, software controlled relay contacts are required
Binary outputs must a have break capacity AC of Vmax: 300 Vac / Imax: 8 A / Pmax: 2000 VA and a break capacity DC of Vmax: 300 VDC / Imax: 8 A / Pmax: 50 W
Measuring inputs: DC measuring input
In voltage mode the device must have the following measurement ranges: ±10 mV, ±100 mV, ±1 V, ±10 V In current mode the device must have the following measurement ranges of ± 1 mA and ± 20 mA
DC measuring inputs accuracy in current range: ±0,06% rd. + 0,02%
rg. DC measuring inputs accuracy in 10V range: ±0,05% rd. + 0,02%
rg.

IEC 61850

The test set must give the possibility to generate up to 4 streams of IEC 61850 Sampled Values for simulation of merging units
The Sampled Value streams produced can be synchronized to time source incl. IEEE
1588 PTP The test set must give the possibility to publish up to 128 GOOSE
The test set must give the possibility to publish up to 128 R-GOOSE
SV versions according to the implementation guideline of the UCA International User Group ("9-2LE") must be supported
The solution must support configurable Data Sets (incl. optional fields) according to IEC 61850-9-2 and IEC 61869-9.
The test set can map the output for GOOSE or R-GOOSE up to 360 binary
outputs The test set must give the possibility subscribe to up to 128 GOOSE
The test set must give the possibility subscribe to up to 128 R-GOOSE
The test set can map the input for GOOSE or R-GOOSE to up to 360 virtual inputs
The performance of GOOSE is according IEC 61850-3 type 1A class P2/3 and less than 1 ms
In GOOSE DataSets mappings have to be allowed for Boolean, Bit-String. Enum, Integer, and Unsigned The test set supports IEC 61850 Client/Server data exchange by execution of arbitrary defined test states with feedback via C/S data

Certifications

The manufacturer of the test devices must be ISO9001 certified
The test system must be developed according to international IEC
standards TÜV-GS, TÜV NRTL certification is required
IEC 61850 interoperability must be certified by a test lab which is accredited by the UCA International User Group
Safety Standards and Electromagnetic Compatibility
The product adheres to international electromagnetic compatibility (EMC) standards such as IEC/EN / FCC / CISPR (CE conform)
The product adheres to international safety standards IEC/EN / UL / CAN/CSA (CE conform).
The product's safety functions adhere to the functional safety standard ISO 13849

Safety Standards and Electromagnetic Compatibility
The product adheres to international electromagnetic compatibility (EMC) standards such as IEC/EN / FCC / CISPR (CE conform)
The product adheres to international safety standards IEC/EN / UL / CAN/CSA (CE conform). The product's safety functions adhere to the functional safety standard ISO 13849

User Safety
A missing ground connection must be detected by and indicated on the product "The product must indicate with bright red and green signal lights if
- it is safe to wire to the test set (green)
- the test set is ready to output analog signals (red)
- if signals are actively being output (red flashing)"

The product must include an operational mode button to switch between its safety states
The product must offer an interlocking key to prevent unauthorized usage
At least two interlock keys must be provided with each product
The product must have the possibility to connect an external emergency-off button
The product must detect if an external emergency-off button becomes disconnected from the test set and alert its user in the software
The product must be capable of measuring a residual current on at least one analog output when used for testing of current transformers
Safety functionalities must be implemented according to ISO 13849 with a performance level PLe for the emergency-off function and changing the operational mode
The device must be able to detect internal moisture and automatically initiate a self-drying procedure The product must offer a maximum operating altitude of 4000 m / 13.000 ft
A separate connection to ground (earth) must be available via an additional earthing plug. A grounding cable must be delivered with the test set.

Cyber Security
The vendor must run a Secure Software Development Lifecycle (SSDLC) The product must be equiped with a secure cryptoprocessor
The product must perform a secure and measured boot
The product's firmware must be encrypted
The communication between the product and it's control software on a PC/laptop must be encrypted
Mutual authentication between the product and the PC/laptop that controls it must be available
The vendor must be certified according to ISO 27001

1.4 SOFTWARE SPECIFICATION:

A. General functions:

- The software must be compatible to RIO & XRIO Standard. Software should have provision to Import Direct software settings which should eliminate to feeding settings. All manufacturers templates should be available with respect to various protections like Distance, Differential, OC and Generator protections. It should be upgradeable free-of charge
- The testing software must have the possibility of adding test points in manual and automatic mode directly as Symmetrical components values (Direct, Inverse (Positive, Negative and Zero sequence)
- The testing software must have Vector Diagram representation that shows the test point quantities during the test and at any time after the test is finished if the specific test point is selected. The vector diagram must also be part of the report.
- The testing software must have the possibility of fault quantity ramping (voltage or current, amplitude or phase) for all fault loops LE, LL, LLL
- The testing software must have the possibility of creating sequence of minimum 100

states for typical prefault, fault postfault applications with flexible trigger conditions time, binary inputs with logical AND and OR, Key Pressed, or External Triggers from GPS. The sequence must be executed in real time, delays between the states are not permissible. When working with a sequence of states it must be possible to trigger them with a GPS signal

- The testing software must have the possibility of adding test points in manual and automatic mode directly as Power (input values as power)
- The testing software must have possibility of power S,P,Q quantity ramping as 3-phase or single –phase powers
- Control of the GPS satellite receiver must be possible within test software. PTP protocol must be supported to perform end-to-end testing.
- Test software must have possibility to operate in primary or secondary values (Z, R, X, S, P, Q, V, I) and allow toggling between theses 2 operation modes at any time (before during or after the test)
- The testing software must have the possibility of Impedance quantity ramping as IZI, Phi, R, and X for fault loops LE, LL, and LLL
- The test software must have the possibility to export the automatically generated test report as .rtf (Rich Text Format) file, csv format (Comma Separated Values) & .xml format (Extensible Markup Language)
- Relay software should have a facility to vary 2 parameters or more like Voltage Amplitude & Current Amplitude at a time to create a real fault simulation.
- The software and hardware should be capable of testing the Power swing function in all 4 quadrants of the R-X plane.

B. DISTANCES RELAY TESTING:

- Manual and automatic tests for impedance plane, starter characteristic, auto recloser, Z/ t grading diagram shall be possible.
- The test software must have a functionality to define and perform tests of distance relays by impedance element evaluations using single-shot definitions in the Z-plane with graphical characteristic display
- Test models to be supported: constant current, constant voltage.
- Software must have the possibility of importing relay characteristic from relay manufacturer which are supporting RIO/XRIO export
- Testing of relays with simulation of the arc resistance must be possible & The software must have the possibility of simulating DC offset and setting the fault inception angle
- To check the reach test, Software should have a facility to draw a line at any part of characteristics & same identify the exact reach test for all the zones automatically.
- XRIO file format for the transfer of relay setting parameters to be supported.
- It must be possible to add sequence of prefault, fault & postfault shots and then to execute this automatically including automatic assessment of the correct trip time according to given tolerances
- Adding test points as Z and Phi or as R and X must be possible
- To perform automatic testing on distance characteristics should draw a line on distance characteristics on various path i.e 0-360 deg & same points to be calculated automatically the timings of the different zones & Zone Reaches. Same should perform a reach test cum timing test simultaneously.
- The testing device must provide the voltage and current terminals as 4 mm banana plugs and (at least 3 voltages ad 3 currents plus neutrals) in a common connector. It should be connected to the generator combination Socket where 3 voltages and 3 currents can be useddirectly for the testing.

C. DIFFERENTIAL RELAY TESTING:

- Templates for all manufacturers should be available to perform automatic testing
- Kit software should import the relay settings from Relay software using XRIO
- Kit should perform automatic Slope characteristics testing by Shot test as well as reach test
- Kit should capable to inject 25A both sides (Primary and secondary) for Generator slope test in automated method for 5A Secondary ratio
- Kit should perform automatic harmonics testing
- Kit software should have provision to inject 1phase fault (L1-E, L2,E and L3-E), 2-Phase faults(L-L) and 3-phase faults on slope characteristics and verify it.

D. OVER CURRENT RELAY TESTING:

- Manual and automatic test modes shall be available.
- Feeder Protection /OC protection templates for respective manufacturer should be available for automatic testing to avoid settings complications.
- The test software must have a functionality for testing overcurrent protection covering ground fault, phase fault, positive, negative and zero sequence fault models
- It must be possible to test directional and non-directional overcurrent relays and provide test points in backward direction that are automatically assessed positive if the relay blocks
- Library with all standard definite and inverse characteristic (IEC, ANSI, IAC, I2t) must be available and it must be possible to model a non-standard characteristic easily point by point
- It must be possible to extract (digitize) overcurrent inverse-time characteristics from graphical representations (e.g. from a relay manual image)
- Relay test kit Software must test both IDMT Characteristics as well as Directional feature at a time and same should display characteristics of both IDMT as well as Direction during testing.

E. TESTING OF IEC61850:

*** GOOSE:**

- The test set must give the possibility to publish & Subscribe up to 128 GOOSEs
- The test set can map the input for GOOSE to up to 360 virtual inputs and outputs
- The performance of GOOSE is according to IEC 61850-3 type 1A class P2/3 and less than 1 ms.
- The software must support R-GOOSE.
- It must be possible to insert configuration in a test plan and to automatically import parameters from configuration files in SCL format
- The performance of GOOSE is according IEC 61850-3 type 1A class P2/3 and less than 1 ms
- All the other functionalities in the SW must be compatible with GOOSE

***Sample Value**

- The test set must give the possibility to generate up to 4 streams of IEC 61850 Sampled Values for simulation of merging units and Sampled Value streams produced can be synchronized to time source incl. IEEE 1588 PTP
- SV versions according to the implementation guideline of the UCA International User Group ("9- 2LE") must be supported
- The preferred SV versions for protection and measurement according to IEC 61869-9 must be supported.
- Software must support the configuration of SV streams

F. Automatic test plan creation to easy maintenance testing:

- Test Plans can easily be built, maintained and distributed.
- Common test object data, hardware configuration, and test modules for the different device functions can be collected in one test plan which eliminate testing time during periodic maintenance time.
- The test plan automatically executes the test modules – one by one, results being stored in the included dynamic report
- The modules Pause, Execute, and Text View make the test plan interactive and let it include the power of other programs
- Test Plan should be one-time investment and later stages it should help to test the respective protection IEDS without feeding settings, creating different faults & etc.

G. Future Upgradation Possibility:

The test kit should be hardware wise compatible for testing energy meters and the software license should be future upgradable with these features.

a. The software must have the functionality of testing all kind of energy meters according to IEC 62053 with or without additional reference meter (reference meters pulse frequency up to 100 kHz)
b. The following test modes must be available: load test, mechanism test, gated mechanism test, injection test, no-load test, creep test
c. It must be possible to test single and three phase meters (3 & 4 wire) exporting and importing
d. The testing of meters measuring the iron and copper losses of transformers (I2h, V2h) must be supported.
e. Testing of the meter harmonic behavior with sin+DC and sin+Harmonic must be possible
f. Scanning head must be supported with the software
g. It must be possible to calibrate the test hardware against a highly accurate energy standard saving the test sets error at the various test points. It must be possible to load these correction data into a test performed with the meter to be tested. By applying these data to the error calculation of the meter it shall be possible to obtain an error compensated test result.
h. The file with the meter data must be compatible to RIO

H. Portable GPS antenna.

- A portable GPS antenna should be provided with the test kit to time synchronize the input outputs signals.
Weight: < 500 g / 1.1 lbs
Degree of protection: IP67 according to EN 60529
Power consumption < 2 W
Satellite receiver Hardware:
32 channels
GPS frequency: 1575.42 MHz, L1 band
GLONASS frequency: 1602.00 Mhz, L1 band

Networking: 1 Ethernet port, 10Base-T/100Base-TX Ethernet
Supports IPv4 and IPv6
Power over Ethernet (PoE) according to IEEE 802.3af DHCP
Zeroconf (MDNS/DNS-SD)

Waterproof Ethernet connector according to IEC 61076-3-106 (Variant 4)
Management: Web interface (HTTP/HTTPS)
TFTP, FTP and SSH access
Automated configuration via SSH and XML files Failsafe
software upgrade in the field
Email notifications Syslog (local
and remote)
SNMP (for IEEE C37.238-2011)

Timing accuracy: ±100 ns to reference time (TAI/UTC)
Supported timing protocols: PTP according to IEEE 1588–2008 (IEEE 1588 version 2)
NTP v4 according to RFC 5905 Time (RFC 868)
Daytime (RFC 867)
PTP features: Default profile IEEE 1588-2008, Annex J
Power profile according to IEEE C37.238-2011 (IEEE profile for use of IEEE 1588-2008
Precision Time Protocol in power system applications)
Power profile IEEE C37.238-2017 (IEEE profile for use of IEEE 1588-2008 Precision Time
Protocol in power system applications)
IEC/IEEE 61850-9-3:2016
One-step and two-step operation
End-to-end (multicast) and peer-to-peer delay mechanisms
PTP over UDP/IPv4, UDP/IPv6 and Ethernet/IEEE 802.3 (IEEE 1588-2008 Annex D, E,
and F)

PTP management interface
High performance (up to 512 messages per second)

1.5 Power supply requirements to the equipment shall be as follows:

Nominal input voltage - 100 – 240 VAC, 1-phase
Permissible input voltage 85 ... 264 VAC
Nominal frequency - 50/60 Hz
Permissible frequency range -45 ... 65 Hz
Rated current -12 A at 115 V / 10 A at 230 V
Connection Standard AC socket (IEC 60320)
Operation temperature - 3 0 ... +50 °C (+32 ... +122 °F)
Storage temperature -25 ... +70 °C (-13 ... +158 °F)
Humidity range Relative humidity 5 ... 95 %, non-condensing

CONFORMANCE
Standards: Safety: IEC
61010-1
Shock: MIL-PRF-28800F (30 g/11ms half-
sine) IEC 60068-2-27 (15 g/11 ms half-sine)
Vibration: MIL-PRF-28800F (10-500 Hz, 2.05 g
rms) IEC 60068-2-6 (10-150 Hz, 2 g)
Transit Drop: MIL-PRF-28800F (10 drops, 46 cm), ISTA 1A

Electromagnetic Compatibility
Emissions: IEC 61326-2-1, IEC 61000-3-2/3,
FCC Subpart B of Part 15 Class A
Immunity: IEC 61000-4-2/3/4/5/6/8/11

Above said Conformance standard should meet or equal.

Annexure- 3 - Technical Specifications of Bus Duct

BSES

BSES RAJDHANI POWER LIMITED

Technical Specification for

11 kV Segregated Phase Bus Duct

For 66/11 kV G-4 Grid Substation

Specification No. GN101-03-SP-54-00

Prepared by:	Sign:	Approved by:	Sign:	Rev	Date
Hemanshi Kaul		Kiran Alla		R0	July 14, 2015

Kiran Kumar Alla
HoD - Central Engg Services
Emp. No. 41015970
BSES Rajdhani Power Ltd.

Contents

1. **Intent of Specification:**

This specification covers the design, manufacturing, testing at manufacturer's work, packing and delivery at site/stores of purchaser including installation and successful commissioning of 11 kV Segregated Phase Bus Duct at site.

2. **Scope:**

a. Design, manufacture, testing at manufacturer works before dispatch, packing, and delivery of Bus Duct as per this specification and supply of commissioning spares.

b. Supply and installation of Bus Duct including all accessories.

c. Submission of drawing documentation of Bus Duct.

d. Supervision of testing & commissioning of Bus Duct at site.

3. **Relevant standard:**

S. No.	Standard No.	Standard Details
1	IS 8084	Specification for interconnecting Bus bar for AC voltage above 1Kv up to and including 36Kv.
2	IS 2544	Porcelain post insulators for systems with nominal voltage greater than 1000 Volts (first revision)
3	IS 5350 Part - 1	Dimensions of indoor and outdoor porcelain post insulator and post insulator units for system with nominal voltage greater than 1000 V: Part 1 Indoor post insulators
4	IS 9431:1979	Indoor post insulators of organic material for systems with nominal voltages greater than 1 000 V up to and including 300 kV
5	IS 4759	Hot Dip Zinc coating on structural steel and allied product
6	IS 2629	Recommended Practice for Hot Dip Galvanizing of Iron and steel
7	IS 2062-1999	Hot Rolled Low, medium and high tensile Structural Steel
8	IS 2099	Bushing for alternating voltage above 1000V
9	IS 1893	Criteria for earthquake resistant design of structure
10	IEEE No. 298	Temperature rise calculations
11	IEEE Std. C37.023	Metal enclosed Bus Duct
12	IEC 62271-200	AC Metal enclosed switchgear and Control gear for Rated Voltages above 1 kV and up to and including 52 kV
13	IEC 62271-1	High Voltage switchgear and Control gear – Part 1: Common specifications
14	IEC 60694	Common Specification for high voltage switchgear and Control gear standards
15	IEC 60060	High-voltage test techniques. Part 1: General definitions and test requirements
16	IS 875	Code of practice of design loads (other than earthquake) for buildings and structures
17	IS 800	General Construction in Steel - Code of Practice
18	CBIP Manual	CBIP manual on busduct 2007 - Publication number 303
19		Any other relevant standard

4. Major Design Criteria:

MAJOR DESIGN CRITERIA FOR SEGREGATED PHASE BUS DUCT		
4.1	**Enclosure**	
4.1.1	General	The three phases shall be enclosed in a weather-proof, dust-tight, phase segregated type with non-magnetic metal
4.1.2	Shape	Preferably rectangular in shape.
4.1.3	Dimensions	As per design, maintaining necessary clearance as per relevant IS
4.1.4	Material and Thickness	Aluminum alloy of min 3mm thickness
4.1.5	Slope	Bus duct shall be with plain top
4.1.6	Phase Barriers	i. Phase barriers shall be provided in the bus duct for phase segregation. Ii. The barrier shall be welded to the enclosure.
4.1.7	Identification	For identification of each part of bus duct or accessories for installation at site, appropriate match mark or part number shall be done
4.1.8	Gasket	i. Flange gasket of neoprene shall be provided for the dust tight joints between adjacent enclosure sections ii. Gasket shall be preferably of the joint less type
4.1.9	Expansion Bellows	i. Rubber below shall be provided with pressure plate to withstand vibration, expansion or contraction at equipment terminations. ii. Shall be provided at suitable intervals in any straight run of bus duct where the expansion and contraction would otherwise result in stress of the supporting structures. iii. Shall be weather-proof, non - deteriorating type without any adverse impact with exposure to sunrays, rain etc.
4.1.10	Inspection Opening	i. Shall be provided (on top surface) to allow easy access to support insulator, bus joints, switchgear terminals, etc., for maintenance, checking and replacement. ii. All inspection openings shall have reliable sealing arrangement with neoprene gasket.
4.1.11	Seal off bushings	Epoxy resin cast seal-off bushings complete with wall frame and support plates shall be provided at all wall crossings to avoid propagation of fire and free exchange of air.
4.1.12	Wall frame assembly	During detailed Engineering
4.1.13	Drain plugs	i. To be provided at the lowest points and at such locations where accumulation of condensate can be expected. ii. Drain plug shall be located at suitable place convenient to

		operate.
4.1.14	Silica Gel Breathers with dust filter	Shall be provided and designed for easy maintenance
4.1.15	Hardware	Hardware for flange joints shall be of electro galvanized MS. (bolt+1N+1SW+2PW-HTS Zn Plated).
4.2	**Bus Conductor**	
4.2.1	Design	i. The bus conductor shall be of electrolytic grade tinned copper supported on wet processed insulators designed to withstand dynamic stress due to the specified short circuit current and other forces. ii. The bus conductor shall be designed for bolted connections throughout the run (high grade stainless steel nuts bolts plain and belle-ville washers). iii. Copper Flexible connections shall be provided minimum at 10mtrs interval between bus sections to allow for expansion and contraction of the conductor. Flexible connections shall be provided at all equipment terminations. iv) All contact surfaces shall be silver plated to ensure an efficient and trouble - free connection. All connection hardware shall be non-magnetic and shall have high corrosion resistance. v) Bus bar calculations shall be submitted to the purchaser along with the drawings and documentation for approval. All de-rating factors applicable shall be taken into consideration. Bimetallic connectors of approved make shall be used for connections where bus conductor material is different. vi) Necessary space and arrangement for transposing of phase conductor to match the phase sequence of end panels' Bus bar.
4.2.2	Marking and identification	All bus bars shall be color coded as Red, Yellow and Blue at regular intervals for easy identification of phases
4.3	**Insulators**	
4.3.1	Type	Bus support insulators shall be interchangeable, high creep and high strength, wet process, suitable for heavily polluted atmosphere. Creepage distance of 31mm/kV
4.3.2	Stress Concentration	The insulator shall avoid stress concentration due to direct engagement with the metal fittings
4.3.3	Inspection / Removal / Replacement	The insulator shall be designed and mounted in such a manner so as to facilitate easy inspection, removal and replacement without disturbing the conductor.
4.3.4	Insulator Mounting Plate	Shall be designed for cantilever loading to withstand the short circuit forces.

4.3.5	Conductor mounting on insulator	The conductor shall be fastened on the insulator through fixed and slip joints so as to allow conductor expansion or contraction without straining the insulator
4.3.6	Insulating support at bends	Additional support insulators shall be provided at bends for withstanding all possible forces
4.4	**Terminations at equipment ends**	
4.4.1	Accessories	All matching flanges, flexible connections, phase changeover boxes / adaptor boxes, gaskets, fittings, hardware and support required for termination of the bus duct at switchgear ends shall be provided.
4.4.2	Termination Adaptor	i. Supply the required adaptor of suitable dimension to match with terminating equipment
		For terminating the bus conductors at the switchgear terminals suitable flexible connections shall be provided.
		Flexible connection at equipment termination shall be able to take care of misalignment up to 25mm in all directions.
4.5	**Conductor Joints / Flexible Links**	
4.5.1	Contact surface	All joints in the bus conductor shall be plain
4.5.2	Flexible links type and material	i. Braids or multiple laminations ii. Shall be copper with silver plating on both contact surfaces for termination. iii. Shall be Copper for switchgear termination. iv. Shall be Copper for expansion joints in the bus conductor. v. The palms of Copper flexible shall be of welded construction only.
4.5.3	Hardware	Bolts and nuts for main bus bar joints shall be of high grade stainless steel, with plain / spring steel belle-ville washers (Bolt+1N+1SW+2PW-HTS Zn Plated)
4.5.4	Bi-metallic connectors	Shall be provided wherever the material of bus conductor and equipment terminals are different
4.6	**Earthing**	
4.6.1	Earthing conductor	i. Continuous earth conductor shall be provided along the entire run of each bus duct on the outside mandatorily. Ii. Shall carry the rated short -circuit withstand current for rated duration of short-circuit and shall be at least 50X6mm copper strip iii. All parts of the bus enclosure and supporting structure shall be bonded to the above ear thing bus. iv. Drilled holes on the enclosure for the purpose of mounting of the earthing conductor will not be permitted, to prevent ingress

		of water.
4.6.2	Terminal pads	i. Earthing pads with hardware shall be provided on both ends of the earthing conductor to connect the riser from station earthing grid. Ii. Shall have drilled holes for bolting.
4.7	**Supporting arrangement**	
4.7.1	Scope	All supporting structures required for hanging and/or supporting the complete bus duct shall be furnished. These include all members, indoor posts, bolts, shims, base plates, beams, hangers, brackets, bracings and hardware.
4.7.2	Material	Shall be of high strength steel with weather resistant finish as per IS 2062-99
4.7.3	Design Considerations	i. Design shall be done conforming to IS 800 ii. The bus duct shall be adequately supported and braced to successfully withstand normal operation, vibration, thermal expansion, short circuit forces, seismic forces and all specified design load all along its route. iii. All supporting members and hardware shall be designed to limit the transmission of bus duct and supporting member weight forces to equipment. iv. Safety factor of 2.0 shall be used.
4.7.4	Supporting arrangement	Indoor portion of the bus ducts shall be hanging and supported from roof beams or steel inserts in roof / wall
4.7.5	Tolerance	Supports shall be designed to provide tolerance of +/- 12mm (1/2") in the horizontal and vertical directions.
4.7.6	Galvanization	i. All steel members shall be hot -dip galvanized as per IS 4759 and IS 2629. ii. Minimum thickness of zinc coating shall not be less than 610g/sq.m or 86 micron
4.8	**Space heater**	
4.8.1	Provision	The bus duct shall be provide with adequate number of space heaters mounted on insulated feet to maintain internal temperature above the dew point
4.8.2	Temperature control	By an adjustable thermostat, factory set to close at 30 Deg C(ON) and open at 65Deg C (OFF)

4.8.3	Internal Wiring	i. Space heater and thermostat shall be wired up to terminals in terminal boxes mounted on the bus duct, for external cable connections. Ii. The wiring inside the bus duct shall be done with 1100V grade high temperature resistance cable suitable for the bus duct maximum temperature. iii. The minimum size of stranded copper conductor shall be 2.5sqmm iv. All wires inside the bus duct shall be laid in the GI Conduit. v. Terminal boxes shall be provided with removable gland plated for cable entry.
4.8.4	Marshalling Box	Marshalling box suitable for wall mounting shall be supplied. It shall house the ON/OFF switch, Contactor and other controls / wiring as required.
4.8.5	External Cabling	Cable from terminal boxes to marshalling box shall be in purchasers scope
4.8.6	Power supply	240V single phase 50Hz shall be cabled by the purchaser to the marshalling box
4.8.7	Control Terminal blocks	i. Box-clamp type suitable for 2x2.5 Sq.mm. copper conductor with marking strips. ii. Not more than two wires shall be connected to one terminal
4.8.8	Spare terminals	20% of active terminals shall be provided in the terminal box
4.9	**Painting**	
		i. All surfaces shall be thoroughly cleaned and cleared of all blemishes. De-rusting, degreasing, etc shall be done before painting or galvanizing. Paints shall be carefully selected to withstand heat. The paints shall not scale off or crinkle or get removed by abrasion due to normal handling. ii. Except for support steel structures (which shall be galvanized), all equipment shall be finished with an undercoat of high quality primer followed by two coats of synthetic enamel paints unless otherwise epoxy paints as specifically required. iii. The interior surface finish shall be as per manufacturer's standard. The shade of exterior surface finish for indoor shade shall be informed during detail engineering. iv. Sufficient quantities of all paints and preservatives required for touching up at sites shall be furnished.
4.10	**Nameplate**	
4.10.1	Material for nameplate	Aluminium / stainless steel, 1mm thick, using black letters

		i. Subject to approval during detailed engineering ii. Details on the nameplate shall be as per IS:8084
4.11	**Special Tools & Tackles**	
		i. A set of special tools & tackles which are necessary or convenient for erection, commissioning, maintenance and overhauling of the equipment shall be supplied. ii.The tools shall be shipped in separate containers, clearly marked with the name of the equipment for which they are intended.
4.12	**Spares**	The Bidder shall submit a list of recommended spare parts for five (5) years for satisfactory and trouble free operation, indicating the itemized price of each item of the spares.

5. Drawing, data & manuals:

a. General Arrangement Drawing – Plan and Sections.
b. Typical details of bus-insulator assembly, conductor/enclosure connections rigid & flexible, seal-off bushings, connection with transformer & switchgear terminals, etc.
c. Bill of Materials.
d. Technical leaflets/Write-ups on various pieces of equipment offered.
e. Calculation for temperature rise for bus and enclosure as per IEEE No. 298.
f. Calculation for short circuit forces justifying the proposed arrangement.
g. Type test reports on similar equipment.

6. Approved Makes:

Sl. No.	Description of Item	Approved 'Makes'
1	Electrolytic grade tinned copper	
2	Bus support insulator	
3	Seal off bushing	
4	Flexible bellow	
5	Flexible conductor	
6	Gaskets	

7. Quality Assurance:

Bidder shall submit the Quality Assurance Plan along with the Guaranteed Technical Particulars.

8. Enclosure:

a. Annexure A – General Technical Particulars
b. Annexure B – Service Conditions
c. Annexure C – General Technical Particulars (Data by Bidder)
d. Annexure D – Site Layout and Suggestive Sectional View

Annexure A – General Technical Particulars

RATINGS & REQUIREMENTS		
1	**GENERAL (Applicable to all equipment)**	**11000 V SYSTEM**
1.1	System nominal voltage	11000 V
1.2	System maximum voltage	12000 V
1.3	Number of phases	3
1.4	Frequency	50 Hz
1.5	Neutral Grounding	Neutral solidly grounded
1.6	Insulation level	
	a. 1-min. power frequency withstand	28 kV rms
	b. Impulse withstand	75 kV peak
1.7	Creepage distance	31mm/kV
1.8	Short Circuit Level	26.3 kA for 3 Sec.
1.9	Ambient Temperature	50°C
1.10	Humidity	100%
2	**BUS DUCT**	
2.1	Type	Phase segregated self-cooled
2.2	Service	Indoor
2.3	Rated hottest-spot temperature rise (Over 50°C ambient)	a. Bus conductor i. Plain joint 35°C ii. Silver plated joints 55°C b. Bus enclosure & Structure 20°C
3	**Material**	
3.1	Bus conductor	Electrolytic grade tinned copper
3.2	Rated Continuous Current in Amp	2000A
3.3	Short circuit rating of Bus Bar	26.3kA for 3 sec
3.4	Bus enclosure	Aluminum Alloy grade 19501, 60% IACS (min 3 mm thick)
3.5	Inter-phase barrier	Aluminum alloy (min 3 mm thick)
3.6	Enclosure Protection Class	IP-52 for Indoor Installation (Min)
4	**Clearances**	As per relevant IS

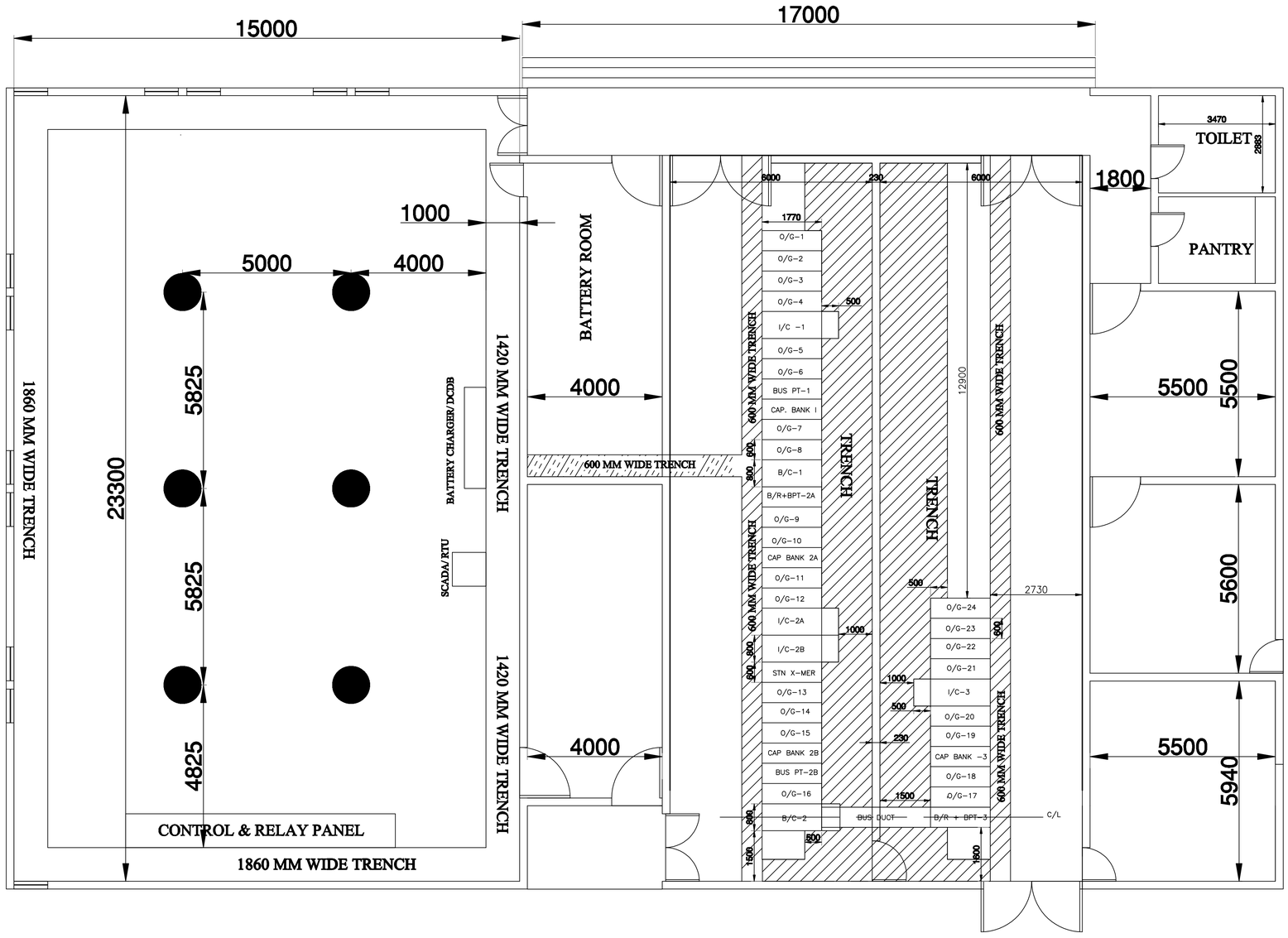
Annexure B – Service Condition

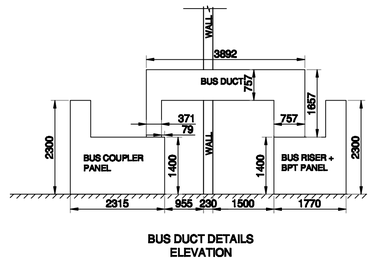
S. No.	Particulars	Data
1	Average grade atmosphere pollution level	Heavy polluted , dry
2	Maximum altitude above Sea level	1000 M
3	Ambient Air temperature	Highest 50 deg C, Average 40 deg C
4	Relative Humidity	100 % Max
5	Seismic Zone	IV as per IS 1893
6	Rainfall	750 mm concentrated in four months
7	Wind Pressure	195 Kg/m2 up to 30 M elevation as per IS 875-1975

Annexure C: Guaranteed Technical Particular (Data to be filled by bidder)

S. No.	**Particulars**	**Data by Purchaser**	**Data by Bidder**
1	**General**		
1.1	System nominal voltage	11000 V	
1.2	System maximum voltage	12000 V	
1.3	Number of phases	3	
1.4	Frequency	50 Hz	
1.5	Neutral Grounding	Neutral solidly grounded	
1.6	Insulation level		
	a. 1-min. power frequency withstand	28 kV rms	
	b. Impulse withstand	75 kV peak	
1.7	Creepage distance	31mm/kV	
1.8	Short Circuit Level	26.3 kA for 3 Sec.	
1.9	Ambient Temperature	50°C	
1.10	Humidity	100%	
2	**BUS DUCT**		
2.1	Type	Phase segregated self-cooled	
2.2	Service	Indoor	
2.3	Rated hottest-spot temperature rise (Over 50°C ambient)	c. Bus conductor i. Plain joint 35°C ii. Silver plated joints 55°C d. Bus enclosure & Structure 20°C	
2.4	Overall dimensions (LxBxH)		
3	**Material**		
3.1	Bus conductor Material	Electrolytic grade tinned copper	
3.2	Rated Continuous Current in Amp	2000A	
3.3	Short circuit rating of Bus	26.3kA for 3 sec	

	Bar		
3.4	Bus enclosure	Aluminium Alloy grade 19501, 60% IACS (min 3 mm thick)	
3.5	Inter-phase barrier	Aluminium alloy (min 3 mm thick)	
3.6	Enclosure Protection Class	IP-52 for Indoor Installation (Min)	
3.7	Bus Bar Size (LxBxT)(mm)		
4	**Clearances**	As per relevant IS	





BUS DUCT DETAILS ELEVATION

NOTE:
1. FLENGE DETAILS FOR BUS DUCT SHALL BE AS PER PANEL MANUFACTURER DRAWING.
2. NECESSARY ARRANGEMENT FOR PHASE CROSS OVER IN THE BUS DUCT NEED TO BE PROVIDED.
3. CLEAR HEIGHT BENEATH THE BUS DUCT IS TO BE MAINTAINED AS PER DRAWING.
4. DIMENSIONS OF BUS DUCT SHALL BE DECIDED AS PER DESIGN, CONSIDERING SECTIONAL CLEARANCES.

NOTE:
1. CONTROL PANEL DIMESIONS & OTHER DETAILS SHALL BE AS PER MANUFACTURER DRAWING.
2. BATTERY CHARGER, DCDB AND ACDB DIMENSIONS SHALL BE AS PER MANUFACTURER DRAWING.
3. SECTIONAL DETAILS OF ALL THE TRENCH HAS ALREADY BEEN RELEASED VIDE DRAWING NO.BRPL/ CES / G-4 DWARKA/ C /POWER CABLE TRENCH SECTION/ 001; DATED 04-08-2014.
4. WIDTH OF CONTROL CABLE TRENCH IN FRONT OF 11 kV PANELS HAS BEEN REVISED TO 600 MM.
5. WIDTH OF 11 kV PANELS:
   ALL INCOMMERS, BUS COUPLERS - 800 MM
   ALL OUTGOINGS, STATION TRANSFORMERS, CAPACITOR BANKS, BUS RISERS AND BUS PT - 600 MM
   (REFER MANUFACTURER'S DRAWING)

TITLE:
GENERAL ARRANGEMENT OF 11 kV PANELS

PROJECT:
66/11 kV SUBSTATION AT G-4, SECTOR - 18 DWARKA

BSES RAJDHANI POWER LIMITED
CENTRAL ENGINEERING SERVICES
BUILDING NO. 20, 5th FLOOR,
NEHRU PLACE, NEW DELHI -110019

					DRAWN:	REVIEWED: / SHEET: A1
					CHECKED:	APPROVED: / SCALE: NTS
					REF.NO.:	DATE:
		AS PER APPROVED PANEL DRAWING	01	17-06-2015	DRAWING NO: BRPL/ CES / G-4 DWARKA/ E /11 kV PANEL ARRANGEMENT/ 001;	REV.NO.: 00 / DATE: 14-10-2014
APPROVED	CHECKED	REASON	REV. No.	DATE		

Annexure- 4 – Technical Specifications of BPI

BSES

Specification for

66kV SOLIDCORE POST INSULATORS

Specification no. GN101-03-SP-49-00

Prepared by:		Checked by		Approved by		Rev	Date
Name	Sign	Name	Sign	Name	Sign		
Tanu		Meenakshi		K.K.Alla		00	31-July-14

Index

General Specification

1.0 CODES & STANDARDS:

Materials, equipment and methods used in the manufacture of Solid core post insulators shall conform to the latest edition of following –

National/International Standard

Standard Code	Standard Description
IS - 2544	Porcelain post insulators for system with nominal voltage greater than 1000 V
IS - 731	Porcelain insulators for overhead lpower lines with a nominal voltage greater than 1000 V
IEC - 62231	Composite station post insulators for substation with a.c. voltages greater than 1000 V upto 245 kV
IEC - 60273	Characteristic of indoor and outdoor post insulator for system with nominal voltage greater than 1000V
IEC - 60168	Tests on indoor & outdoor post insulators of ceramic material or glass for system with nominal voltage greater than 1000V
IEC - 60815	Selection and dimensioning of High voltage insulators for use in polluted conditions

The electrical installation shall meet the requirement of Indian Electricity Rules as amended upto date, relevant IS code of practice and Indian electricity act. In addition other rules & regulations applicable to the work shall be followed. In case of any discrepancy the most stringent & restrictive one shall be binding

2.0 MAJOR DESIGN CRITERIA

	Description	Requirement / Rating
2.1.0	System	66KV
2.1.1	Voltage	66KV ± 10%
2.1.2	Frequency	50HZ ± 5%
2.1.3	Fault level	31.5KA for 3secs.

2.1.4	Type	i) Post insulators for substation shall be of outdoor type suitable for operation under tropical condition with high temperature, humidity and rainfall. ii) Porcelain shall be sound, free from defects, thoroughly vitrified and smoothly glazed iii) Unless otherwise specified, the glaze shall be brown in color. The glaze shall cover all the porcelain parts of the insulators except those areas, which serve as supports during firing or left unglazed for the purpose of assembly. iv) The design of the insulator shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to deterioration. The porcelain shall not engage directly with hard metal. Shape of the insulator should be such that it facilitates easy cleaning by normal methods.
2.1.5	Protection against Corrosion	All malleable iron steel work, steel bolts and nuts and flanges shall be hot dip galvanized in accordance with IS:2629 with latest amendment thereof.

3.0 QUALITY ASSURANCE

3.1	Vendor quality plan	To be submitted for purchaser approval.
3.2	Inspection point	To be mutually identified and agreed in quality plan.

4.0 PROGRESS REPORTING

4.1	Out Line Document	To be submitted for purchase approval for outline of production, inspection, testing, inspection, packing, dispatch, documentation programme.
4.2	Detailed Progress Report	To be submitted to purchaser once a month containing i) Progress on material procurement ii) Progress on fabrication (As applicable) iii) Progress on assemble (As applicable) iv) Progress on internal stage inspection v) Reason for any delay in total programme

		vi) Details of test failures if any in manufacturing stages vii) Progress on final box up constraints / Forward path

5.0 DRAWING, DATA & MANUALS

5.1.0	To be submitted along with bid	Seller has to be submitted : i) Tentative GA /cross sectional drawing of product showing all the views / sections ii) Detailed reference list of customers already using the offered product during the last 5 years with particular emphasis on units of similar design and rating iii) Completely filled GTP iv) Deviations from this specification. Only deviations approved in writing before award of contract shall be accepted. v) Details of manufacturer's quality assurance standards and programme and ISO 9000 series or equivalent national certification vi) Type test report from CPRI/ERDA shall be submitted for the type , size & rating of product / equipment offered along with bid in case the type test report for identical product is not available then type report of higher size / rating shall be submitted for review. They shall be considered valid 5 years from date of test. vii) Complete product catalogue and manual along with the bid. viii) Recommended spare parts and consumables items for 5 years of operation with prices and spare parts catalogue with list for future requirements.
5.2.0	After award of contract, seller has to submit mentioned drawings for buyer's Approval (A) / Reference	i) Programme for production and testing (A) ii) Guaranteed Techinal Particulars (A)

	(R)	iii) Calculations to substantiate choice of electrical , structural , mechanical component size / ratings (A) iv) Detailed dimensional drawing for all components, general arrangement drawing showing detailed component layout and the detailed schematic and wiring drawings for all components (like marshalling box) v) Terminal arrangement & cable box details etc. (as applicable) (A) vi) Drawing for major components (A) vii) Rating & Diagram plate (A) viii) Detailed loading drawing to enable the buyer to design and construct foundations (as applicable) (R) ix) Transport / Shipping dimensions with weights, wheel base details, untanking height etc. (As applicable) (R) x) List of makes of all fittings and accessories (A) xi) Detailed installation and commissioning instructions (R) xii) Quality plan
5.3.0	Submittals required prior to dispatch	i) Inspection and test reports, carried out in manufacturer's work (R) ii) Test certificates of all bought out items iii) Operation and maintenance instruction as well as trouble shooting chart / manuals. iv)
5.4.0	Drawing and document size	Standard size paper A0, A1 , A2, A3, A4
5.5.0	No of drgs./Documents required at diffderent stages	As per Annexure A scope of supply

6.0 INSPECTION & TESTING

6.1.0	Inspection and Testing during manufacture	
6.2.0	Routine tests	Tests shall be carried out in accordance with IS 2544

6.3.0	Type Tests	a) On one post insulator of each rating and type tested from CPRI/ERDA, reports to be submitted. b) All the test as per IS 2544 c) In case the product is never type tested earlier, seller has to conduct the type tests from CPRI/ERDA test labs on BSES order at their own cost, before commencement of supply. d) Power frequency withstand test to be carried out on selected sample at the time of acceptance test.
6.4.0	Acceptance test	To be performed in presence of Purchaser at manufacturer works:- i) Verification of dimensions ii) Temperature cycle test iii) Mechanical strength test iv) Puncture test v) Porosity test vi) Galvanising test
6.5.0	Sampling	The number of post insulators or post insulator units to be selected at random from the lot for acceptance tests shall be in accordance with Table 3, IS 2544

7.0 PACKING , SHIPPING, HANDLING AND STORAGE

7.0.0	Packing	
7.1.1	Packing protection	Against corrosion , dampness, heavy rains, breakage and vibration
7.1.2	Packing for accessories and spares	Robust wooden non returnable packing case with all the above protection and identification labels.
7.1.3	Packing identification label	In each packing case, following details are required : i) Individual serial number ii) Purchaser's name iii) PO number (along with SAP item code , if any) & date iv) Equipment Tag no. (if any) v) Destination vi) Manufacturer / Supplier's name vii) Address of manufacturer's / supplier's its agent viii) Description and quantity ix) Country of origin x) Month and year of manufacturing xi) Case measurement xii) Minimum failing load in kg xiii) Gross and net weight in kilograms xiv) All necessary slinging and stacking instructions.
7.1.4	Shipping	i) The bidder shall ascertain at an early date and definitely before the commencement of manufacture, any transport limitations such as

		weights, dimensions, road culverts, overhead lines, free access etc. from the manufacturing plant to the project site, and furnish to the purchaser confirmation that the proposed packages can be safely transported, as normal or oversize packages, upto the plant site. Any modification required in the infrastructure and cost thereof in this connection shall be brought to the notice of the Purchaser. ii) The seller shall be responsible for all transit damage due to improper packing.
7.1.5	Handling and Storage	Manufacturer instruction shall be followed. Detail handling & storage instruction sheet / manual need to be furnished before commencement of supply.

8.0 DEVIATIONS

Deviation from this specification shall be started in writing with the tender by reference to the specification clause/ DTP/Drawing and a description of the alternative offer. In absence of such a statement, it will be assured by the Buyer that the seller complies fully with this specification.

Note: Bidder shall furnish MQP along with technical bid and shall submit required guaranteed technical particulars as per attached Annexure - C

Annexure –A Scope of supply

1.0 The scope of supply shall include following

1.1 Design, engineering, manufacture, assembly, testing at manufacture's works, packing, transportation and delivery to site, supervision of erection, testing at site & commissioning and submission of complete documentation.

Sr. No.	Description	Scope of Supply
1.0	Fully assembled solid core post insulators with all major parts	YES
1.2	Fixing Bolts for insulators	YES
1.3	Routine testing as per this specification	YES
1.4	Type testing as per this specification	YES
1.5	Submission of Documentation as detailed below	YES

1.2 Supervision of testing & commissioning of post insulators on site

1.3 BOQ as following-

Sr. No.	Purchaser Equipment Tag No. / SAP code	Location / Substation name	Unit	Quantity
1		e.g. Santacruz	No	e.g. 1
2		e.g. Alaknanda	No	e.g. 1
3				
4				
5				

2.0 Submission of documents

Submission of drawing, calculations, manual, catalogues, test report shall be as follows

	Along with offer	For Approval after award of contract	Final after approval	Remarks
Drawing	3 copies (Typical drgs)	4 copies	6 copies + 1 soft copy in CD	See clause 5.0 for various drawing required
Calculations	3 copies (Typical)	4 copies	6 copies + 1 soft copy in CD	See clause 5.0 for details
Catalogues	1 copy		6 copies + 1 soft copy in CD	
Instruction manual	1 copy		6 copies + 1 soft copy in CD	
Test Report	2 copy		6 copies + 1 soft copy in CD	Type test and sample routine test reports

3.0	**Delivery Schedule**		
3.1	Delivery Period start date	-	from data of purchase order
3.2	Delivery Period end date	-	as agreed with supplier
3.3	Material dispatch clearance	-	after inspection by purchaser and written dispatch Clearance for purchaser

Annexure – B SERVICE CONDITIONS

2.0.0	Delhi Atmospheric conditions	
a)	Average grade atmosphere	Heavy polluted , dry
	Maximum altitude above see level	1000 M
b)	Ambient Air temperature	Highest 50 deg C, Average 40 deg C
	Maximum ambient air temperature	0 deg C
c)	Relative Humidity	100 % Max
d)	Thermal Resistivity of Soil	150 deg. C cm/W
e)	Seismic Zone	4 as per IS 1893
f)	Rainfall	750 mm concentrated in four months
g)	Wind Pressure	195 Kg/m2 up to 90 M elevation as per IS 875-1975

Annexure C:GURANTEED TECHNICAL PARTICULARS FOR 66 KV Solid Core Post Insulators

Sr. No.	Description	Data By Purchaser	Data By Supplier
1.0	Highest system voltage	72.5 kV	
2.0	Height of unit	As per IS 2544 and IS 5350	
3.0	Bending Strength (min.failing load)	As per IS 2544	
4.0	Tensile Strength	As per IS 2544	
5.0	Compression Strength	As per IS 2544	
6.0	Torsion Strength	As per IS 2544	
7.0	Power frequency flashover voltage a.)DRY b.) WET	As per IS 2544 a.) 150kV b.) 140kV	
8.0	Impulse Flashover Voltage	325 kV	
9.0	One minute power frequency Voltage a.)DRY b.) WET	As per IS 2544	
10.0	Power frequency puncture voltage	As per IS 2544	
11.0	Visible discharge Voltage	As per IS 2544	
12.0	Creepage distance a.) TOTAL b.)PROTECTED	31 mm/kV	
13.0	Diameter of insulating part		
14.0	Top metal fitting pitch circle diameter (PCD)		
15.0	Bottom metal fitting pitch circle diameter (PCD)		
16.0	All ferrous parts hot dip galvanised (as per IS 2629)	YES	
17.0	Suitable for hot line washing	YES	

Annexure –D RECOMMENDED SPARES (DATA BY SUPPLIER)

List of recommended spares as following –

Sr. No.	Description of spare part	Unit	Quality
1			
2			
3			
4			
5			
6			

Annexure-5 Revised Technical Specifications of Training & Inspection

BSES Rajdhani Power Limited
BSES Bhawan, Nehru Place, New Delhi- 19

TECHNICAL SPECIFICATION

TRAINING AND INSPECTION

Prepared by	**Sonia Mittal**		**Rev: 0**
Reviewed by	**Uttam Shukla**		**Date: 21.11.2025**
Approved by	**Deepti Sharma**		

Training and Inspection

The Scope includes training and inspection of BRPL Officials at site and at OEM's factory on overall product and all its sub-components.

1. Training of BRPL officials

   The Scope includes training of BRPL Officials at site and at OEM's factory on overall product and all its sub-components.
   BRPL official will include departmental personnel from Operation & Maintenance, Protection, SCADA and Engineering.
   Training will include, but not limited to, verbal and written communication on aspects ranging from operation, maintenance, safety, features and functions.
   It will be the responsibility of contractor to arrange the following:

   i) To arrange Air travel and Taxi for local conveyance at the contractors cost for the engineers/ officers deputed for carrying out the inspection of the material.
   ii) To arrange the minimum 4 star accommodation at the contractors cost for the boarding/ lodging and meals thereof for the engineers/ officers deputed for carrying out the inspection of the material.
   ii) To depute his competent representative to impart training of the material.

   Following Table defines man days required for training of each equipment.

S. No.	Equipment	Training at Site (No. of Days)	Training at Factory (No of Days)	No. of BRPL Representatives for Factory Visit
1	C&R Panels	5	2	3
2	Power Transformer	1	1	2
3	11 kV Panels	1	2	3
4	SCADA – RTU	3	2	2
5	Battery Bank	1	0	0
6	Battery Charger	1	0	1
7	11kV APFC with Controller	2	0	0
10	Video Surveillance System	1	0	0
11	Fire Detection System	1	0	0
12	Fire Suppression System	1	0	0
13	GIS Panels	3	3	4
14	Each of the other equipment/testing instrument	1	0	0

2. Inspection & Testing

2.1 Independent Inspection

BRPL may at his discretion delegate inspection and testing of material to an independent inspector.

2.2. Dates for Inspection and Testing

The Contractor shall give the Owner reasonable notice (minimum 10 days) in writing of the date and the place at which any material will be ready for testing as provided in the Contract and Owner shall attend at the place so named within fifteen (15) days of the date, which the Contractor has stated in his notice. The Owner shall give the Contractor twenty four (24) hours notice in writing of his intention to attend the tests. The above notices shall be given at first by the quickest possible means and confirmed later in writing.

If on receipt of the Contractor's notice of testing, the Owner's representative does not find the material to be ready for testing, the costs incurred for re-deputation of inspector and re-inspection shall also be in Contractor's Scope.

2.3 Inspection charges:

Detailed Breakup of no. of inspectors for each inspection shall be as under.

S. No	Equipment	No of Inspectors
1	Power Transformer	2
2	GIS Panels and LCC	3
3	CRP	3
4	RTU	2
5	HT Panels	2
6	For all other equipments	1
7	For all testing and measuring instruments	2
8	For all Stage inspections	1

It will be the responsibility of contractor to arrange the following:

i) Cost of all the inspections within India and abroad (including re inspections) including flight Tickets, local conveyance, Boarding and lodging (Minimum 4 Star Hotel for India and Minimum 4 Star for Abroad) shall be in scope of Vendor. The Factory visits will be held at OEM Factory only.

ii) To depute his authorized representative to associate during the inspection of the material.

In case of fake call or rejection of material or any other cause, the Owner is not liable for reimbursement of the expenditure so incurred by the contractor.

2.4 Rejection

If as-a-result of the inspection, examination or testing as per approved QAP, the Owner decides that any equipment is defective or otherwise not in accordance with the Contract, he may reject such equipment and shall notify the Contractor there-of, immediately. The notice shall state the Owner's objections with reasons.
The Contractor shall then with all speed make good the defect or ensure that any rejected equipment complies with the Contract.
If the Owner requires such Equipment to be re-tested, the tests shall be repeated under same terms and conditions. All costs incurred for re-deputation of inspector and re-inspection shall also be in Contractor's Scope.

Annexure 6

SCADA ADAPTATION AND INTEGRATION SERVICES

Scope of Work includes:

1.1 Erection of RTU Panel

a) Rigging/lifting of RTU Panel shall be carried out only by skilled personals. OEM user manual shipped along with RTU to be referred for the same.

b) RTU shall have a 1000 mm of free space on all the sides of installation area for ease in access to RTU for day to day maintenance activities.

c) RTU base frame shall be fastened to ground using appropriate non corrosive brass fasteners and nuts.

1.2 Mounting of Switch Panel

a) Ensure that the Wall mounted panel has at least 500 mm of free space on all sides.

b) Panel shall be fastened to ground using appropriate non corrosive brass fasteners and nuts.

1.3 Installation of Cable trays.

a) Cable trays must be appropriately supported using non corrosive high quality MS angle supports/tie rods. The type of support requirement shall be as per site requirements.

b) If the cable trays are overfilled beyond the certain criteria established by NEC, another cable tray system shall be added above or below the existing cable tray.

c) To ensure safety cable tray system shall be grounded before the cables are energized.

d) Cable trays must be labeled with the cables they contain.

e) The strength of the cable tray, the cable tray loading and the space between the supports, all the factors has to be taken care of during pre-installation planning of cable systems.

f) NEC guidelines for the safe installation of Cable trays shall be referred.

1.4 Laying of Control Cables between Control and relay Panels to RTU Panel

a) Cable shall be laid in cable trays/trench as per the cable schedule.

b) Cable Schedule shall be provided which will define the two end points of the cable and type of cable. It is the bidder's responsibility to survey the site and make a schedule to lay the cable through the shortest path available.

c) Extra cable if laid by the contractor by mistake shall be be removed by contractor at no extra cost to BRPL.

d) Cable shall be labeled at both the end of terminations and at 5 meter intervals by punching aluminum tags and tying suitable by nylon ties, which shall be arranged by contractor at his cost.

e) All the cables laid on trays shall be neatly dressed up and clamped up or tied to the tray.

f) At least 300 mm clearance shall be provided between LT Power cable/Control cable LT Control Cable and LT instrumentation cable.

g) Civil work including excavations, brick work, plastering etc wheresoever's required shall be carried out by contractor.

h) After cable laying excavated area shall be refilled and restored by the contractor. Removal of debris/related material shall be under contractors scope.

i) The Quantities in BOQ are tentative only and actual quantities of cable laid, civil work etc to be measured and recorded after joint inspection with BRPL Site Engineer In-charge and contractor.

1.5 Laying of RS 485 cable from Multifunctional meters to RTU Panel.

a) All the devices in a communication bus shall be connected in a daisy chain fashion. Any other method of connecting the devices is not recommended as it might cause communication issues or system failure.

b) Maximum length of the cable shall not be longer than 800m.

c) In order to avoid signal reflections it is recommended to connect 120Ω terminating resistance in the last device in the chain.

d) Cable shield shall be grounded at one side only, either at RTU end or at MFM (C&R Panel) end.

1.6 Laying, Crimping and tagging of CAT 6 Cables.

a) Laying of cables near the Power cables or any source of EMI shall be avoided.

b) Cable length shall not exceed 100 Mtrs.

c) Network analyzer shall be use to check the network interference if the cable is laid near Power cables/ EMI Source.

d) CAT6 cables shall be crimped using TIA568-B standard.

1.7 Laying ,Splicing and termination of FO Cables.

a) All fibers shall be spliced and terminated in optical Fiber Patch Panel.

b) For FO patch Cable laid in trench/ tray, each Patch cable shall be contained in 16mm GI flexible conduit/ HDPE pipe.

c) The quality of the splice connection shall be tested thoroughly by highly precise insertion loss meter or an OTDR meter. The values shall be in permissible range and the report for the same shall be submitted.

d) Laying of FO Cable shall confirm to manufacturer's recommendation covering the mechanical constraints such as the maximum bending radius.

e) Machine Printed label strips shall be used for marking port of the LIU Panel

1.8 Glanding and tagging of Control Cables

a) Installation of cable glands shall be carried out by a competent and skilled personal.

b) Cable glands shall not be installed /dismantled whilst the circuit is live.

c) Unused Cable gland holes shall be covered with proper size and quality grommets.

1.9 Ferruling, tagging and termination of Control cables.

a. Printed ferrules (white pvc sleeves with black character markings) to be used for identifying cables/cores.

b. Printed ferrules shall be covered with transparent heat shrink tubes.

c. Printed, corrosion resistant Mettalic tags (high quality aluminium thickness 0.5mm-0.8mm) shall be used for tagging the control cables, armoured communication cables etc. Markings shall be made using laser etching, engraving and the same shall be durable and resistant to fading etc.Edges shall be smoothened to avoid cuts.

d. Printed stickers shall be used for identifying the OFC Patch cables inside the Control panels/Swicthgear panels etc.

Sample cable tag

2.0 Factory Acceptance Test

a. OEM/Bidder Shall submit the detailed FAT Procedure.

b. FAT at OEM factory/Work shop for RTU, SAS equipments, Cables etc shall be organized and arranged by Bidder .The number of BRPL Personals attending the FAT shall be decided by the BRPL Project in-charge, the same depends upon the duration and Quantum of inspection.

c. All the arrangements for Factory inspection Tavel, local conveyance, boarding lodging shall be under bidder scope.

d. The bidder shall arrange the type tests certificates for the following tests.

e. During FAT the Entire substation automation system including complete control and protection system to be supplied under project scope shall be tested for complete functionality and configuration in factory itself.

3.0 Erection, testing and commissioning

a. Bidder shall deploy a skilled manpower from OEM for RTU/SAS installation, configuration, Commissioning and testing activities.

b. Preparation of Cable Schedule, IO mapping schedule, SAS Architecture, Site Acceptance Test check list shall be in the scope of Bidder.

c. Cable schedule , IO mapping schedule , SAS Architecture and other relevant documents related to ET& C work shall be duly approved by BRPL Site- incharge.

d. Integration of Protection Relays/ IED's, TMU etc with RTU using IEC 61850 Protocol. Note: Relay .icd/.cid files along with signal mapping details shall be provided by protection team deployed at site..

e. Integration of Multifunctional meters, Fire alarm Panel, Battery charger , Battery bank (BMS System), Power Quality meter with RTU using modbus RTU /TCP IP Protocol .The mapping details and required manuals for the same shall be arranged by BRPL Project Engineer-incharge. However the same shall be in Bidders scope for Turnkey Projects.

f. Hardwired interfacing of DI, DO AI Signals to RTU as per IO mapping schedule.

g. Testing of all the signals from Master Contol Centre. The same shall be co-ordinated , scheduled and witnessed by BRPL Site In charge

4.0 Quality & Safety Requirements.

a. The OEM shall submit a certificate in respect of compliance of safety guidelines.

b. OEM shall submit the user safety installation manuals of all the electronic/Electric items in RTU Panel/ Ethernet Switch Panels.

c. The safety ground shall be isolated from the signal ground and shall be connected to the ground network. Safety ground shall be a copper bus bar. The contractor shall connect the panel's safety ground to the grid grounding network. Separate grounding (2Pits) is created for communication equipments and Signal ground shall be connected to the communication equipment signal ground

d. **Antistatic mat** shall be installed in front of RTU Panel to protect the RTU/electronic modules from Static discharges during commissioning and normal day to day maintenance activities.

5.0 RTU SOFTWARE REQUIREMENTS

a. RTU Software shall be upward compatible with all the versions of Windows Operation system.

b. All the necessary licenses (PLC/Archive/HMI etc) shall be in scope of supply.

c. RTU software shall be supplied in Full/Complete version.

d. RTU Software setup /licenses shall be provided in a flash drive/Hard lock dongle.

e. The database configuration file must be upload able/ downloadable from/to RTU.

f. The RTU software and database generation should be sized to accommodate for additional 50% of the basic I/O count without requiring software or database regeneration or License.

g. RTU shall have capability of Integration upto 120 IED's through IEC 61850 client server protocol.

h. RTU shall be accessible through Remote through Web browser over secure connection (https/SSL).

i. RTU shall have the feature of remote diagnostics, downloading of System security events and alarms logs through Remote/Syslog server.

j. RTU shall have the feature to analyze the data packets in/out through Ethernet and

serial pots of RTU.

k. The software shall be able to configure IED's, add additional variables, modify interlocks for additional Bays in Future.

l. HMI System (if included in Tendered BOQ) shall include the software tools for the picture editing, engineering and system configuration and all the required necessary standard libraries.

6.0 Transport/logistics of Material

a) Loading and unloading of Material at Site and BRPL store shall be under bidders scope.

b) Loading and unloading of material shall be done by a certified, specialized and skilled manpower/agency.

c) Watch & ward of Material (for BRPL Unmanned Grid Stations) after delivery shall be under bidders scope.

7.0 Documentation

Following documents shall be submitted for BRPL's approval during detailed engineering

a. System Architecture Drawing

b. Hardware Specifications.

c. Functional Design Specification documents.

Following documents shall be submitted during the course of Project execution.

a. Approved System Architecture.

b. Approved RTU drawings.

c. Cable Schedule

d. IO signal mapping Details.

e. List of labels/tags.

f. Product manuals/operator manuals.

g. Assembly drawings.

h. SAT (Site Acceptance Test) procedure.

8.0 Training

a. The classroom training shall be provided to all the designated personals of BRPL for 4-5 days at OEM Factory /Facility.

b. The cost of travel, transportation, and per diem for the trainees shall be borne by BRPL.

c. Suitable training manuals/handouts shall be provided to all the trainees.

d. Training Shall be provided on configuration, installation, commissioning aspects of RTU, DCU,BCU and Numerical Relay – BCPU.All Expenses (Air & Local Travel, boarding and Lodging for 4 to 5 persons) at factory/training center(5 days) comes under Bidders scope

Annexure-7 Pre-bid queries

Pre-Bid Queries

Tender for : "Survey, Design, Supply, Erection, Installation, Testing, Commissioning, Handing over of 02 Nos GIS Grid Substations along with associated Civil work (Package-A) and 09 Nos Cable In feed/Laying works (Package-B) on Turnkey Basis".

NIT NO: CMC/BR/25-26/FK/PR/KG/1310

Sr No.	Clause Number of Bid Document	Query type	Existing Clause provision in tender documents	Justification	Remarks - Query / Clarification	BRPL Reply
1	2		3		4	5
1	S.No. 4b	General	BOQ	As per SLD there are 3x Transformer bays at Molarbandh ss. However, in the BOQ 4x Transformer CRP has been asked. Please clarify the qty required.	66kV Control Relay Panel Transformer Feeder: 4x	The proposed grid has ultimate planned capacity of 4x31.5 MVA PTRs. However in 3 stages: **Stage-1:** Grid construction for 3 nos. PTRs including all Electrical & Civil works excluding 3rd PTR & associated power cables. Trenches capacity to be built up for 3rd & 4th PTR also. **For 4th PTR GIS bay & CRP to be installed and allocation of designated space for other accessories like trenches, cable sealing, 11kV panels etc. For all calculations & provisions like AC/ DC requirement, battery, battery chargers, RTU & IT infrastructure all 4 PTRs shall be considered. Therefore other than PTR foundation, power & control cables all provisions have to be made for 4th PTR.** **Srage-2:** Installation of 3rd PTR alongwith associated power & control cables. **Srage-3:** Installation of 4th PTR alongwith associated power & control cables and it's 11kV switchgear.
2	S.No. 16	General	BOQ	Please clarify the requirement of 2x RTU at Vemasundari ss. We understand that 1x RTU is required at each station.	SCADA RTU: 2x	As per BOQ, only 1x RTU is required at each station.
3		General	BOQ	We understand that one set of common spares for CRP spares are required for this project. Substation wise one set of spares not required. Kindly clarify.		Spares mentioned in individaul equipment specification shall be in scope of the bidder & shall be supply along with equipment.
4		General	BOQ	We understand that RTU spares are not required as not asked in the BOQ. Kindly clarify.		Spares mentioned in RTU specification shall be in scope of the bidder & shall be supply along with equipment.
5		General	General Design Criteria	Fiber Optic cable between substation is excluded from the scope of work. Kindly confirm.	Fiber optic Cable including patch cord, LIU splicing etc. inside substation as well as remote end substation for line differential protection.	Fiber Optic cable is in built in the 66kV Power cable (3cx300 sqmm), After cable termination extension of OFC till CRP, LDR and it's accessories like LIU and patch cord etc. are in bidder's scope of Grid substation package for both the sending end and receiving end substations.
6	3.0 CYBER SECURITY 3.12 /RTUs,FRTUs, SCADA, PLC, etc with IEC communications./ BSES-TS-86-CRP-R2	CRP	Technical Specification	Our offered relays shall be on IEC61850 protocol. Any other protocOl is not required.	Communication protocol conformance standards shall be followed as per IEC:60870-5-101/ IEC:60870-5-103/ IEC:60870-5-104 and respective clauses. Protocol Security conformance standards shall be followed as per IEC:60870-7, IEC:62351-100 part1&3 and respective clauses.	Offered relays shall be on IEC61850 protocol
7	11.5 Protection Relay Requirement for Line CRP (66kV/33kV) **11.5.2 Relay 2: M2FP** /BSES-TS-86-CRP-R2	CRP	Technical Specification	We understand the the mentioned functions shall also be acceptableas built-in part of Relay-1.	Voltage Protection: UV, OV, Sync, VT Fail, etc. Auto reclose functions (3phase) with its enable/disable,Reverse Blocking Function. Local Breaker Backup protection functions. Other protection & control logic functions	Mentioned functions shall be acceptableas built-in part of Relay-1 & Relay-2 both.
8	11.6 Protection Relay Requirement for Transformer CRP (66kV/33kV) **11.6.1 Relay 1: M1PTP** /BSES-TS-86-CRP-R2	CRP	Technical Specification	We are offering 2-winding transformer relay.	Two or Three winding low impedance biased differential protection / high impedance differential protection	okay, noted

9	11.6 Protection Relay Requirement for Transformer CRP (66kV/33kV) **11.6.2 Relay 2: M2PTP** /BSES-TS-86-CRP-R2	CRP	Technical Specification	We understand the the mentioned functions shall also be acceptableas built-in part of Relay-1.	Voltage Protection: OV, Sync, VT Fail, etc. Frequency Protection: OF, UF, df/dt, etc. Reverse Blocking Function. Local Breaker Backup protection functions. Other protection & control logic functions	Mentioned functions shall be acceptableas built-in part of Relay-1 & Relay-2 both.
10	11.6 Protection Relay Requirement for Transformer CRP (66kV/33kV) **11.6.1 Relay 1: M1PTP** /BSES-TS-86-CRP-R2	CRP	Technical Specification	We understand that these functions if required are acceptable as derived functions also.	StandBy EF (HV/LV) protection Sensitive EF (HV/LV) protections.	Need to follow as per BRPL TS
11	11.7 Protection Relay Requirement for Bus Coupler CRP (66kV/33kV) **11.7.1 Relay 1: M1BCP** /BSES-TS-86-CRP-R2	CRP	Technical Specification	We understand that the mentioned features can be achieved through Relay-2.So, any dedicated seperate relay(Relay-1) for the same is not required.	Protection functions as per site requirements.(shall be decided during detailed engineering) VT fuse fail monitoring Bus-2 VT ckt Voltage Protection: OV, UV, Sync, VT Fail, etc.	Dedicated seperate relay(Relay-1) for the same is required.
12	14.0 MANAGED ETHERNET SWITCH **14.1.2 FO Port (Downlink)** /BSES-TS-86-CRP-R2	CRP	Technical Specification	As per Ethernet port configuration, we understand that all numercial relays / IED are required with rear port FO only. Kindly clarify.	Minimum 24 nos i. FO:20 nos LC,1310nm, multimode, 100 Mbit/s. ii. RJ45:4nos(CAT VI usable) Ethernet port copper, 1310nm,100 Mbits/s.	At the time of Detailed Design Engineering (DDE)
13	11.0 NUMERICAL RELAYS 11.1.2 Technology and Functionality BSES-TS-86-CRP-R2	CRP	Technical Specification	Artificial Intelligence technology for Numerical Relays not offered.	Numerical, Artificial Intelligence, Microprocessor based with latest version, provision for multifunction protection, control, metering and monitoring, etc	At the time of DDE
14	11.0 NUMERICAL RELAYS 11.1.21 Human machine Interface (HMI) BSES-TS-86-CRP-R2	CRP	Technical Specification	Any graphical display feature is applicable for BCPU only. Further, alphanumeric key should be a optional feature as the same is not required in BCPUs or Numerical relays.	An alphanumeric key pad and graphical LCD display with backlight indicating measurement values and operating messages. It should be possible to access and change all setting and parameters without the use of PC.	okay & same shall be review at the time of DDE
15	3.0 ANNEXURE- C – SPARES REQUIREMENT/ BSES-TS-86-CRP-R2	CRP	Technical Specification	We understand that, we have to supply spares according to the BOQ only. Kindly clarify.	CRP SPARES	Spares mentioned in CRP specification shall be in scope of the bidder & shall be supply along with equipment.
16	16.0 INSTRUMENTS 16.12 Energy meter provision	CRP	Technical Specification	We understand thet Enery Meter shall be supplied by BRPL and only provision in CRP panel to be provided.	Energy meter is not in supplier's scope. Only space and CT/VT wiring is to be provided in all panels except bus coupler and bus VT. Space shall be 350 mm (H) x200 mm (W) for flush mounting meter with holes for meter connection, wiring which shall be decided during Engineering.	Energy Meter shall be supplied by bidder and it is separate line item in BOQ.
17	4.0 PANEL CONSTRUCTION **4.11 Ventilating louvers** /BSES-TS-86-CRP-R2	CRP	Technical Specification	Our offered panel do not need Ventilating louvers. So, it must be optional for all bidders. Kindly accept.	Ventilating louvers (Top/bottom) required & shall have screens and filters. The screens shall be made of either brass or GI wires mesh.	Need to follow as per BRPL TS
18	6.0 TERMINAL BLOCKS 6.7 Spare terminals/ BSES-TS-86-CRP-R2	CRP	Technical Specification	We shall offer total spares 20% TBs as spares and the calculation shall be 20% of used TBs in a particular panel.	20% in each TB row. The spare terminals shall be provided with lugs mounted on it.	Need to follow as per BRPL TS
19	11.4.5 Warranty & Guarantee/ BSES-TS-86-CRP-R2	CRP	Technical Specification	We shall offer warranty as 66 months from supply or 60 months from commissioning,whichever is earlier	Warranty & Guarantee should cover 66 months for CRP panel & numerical relays from supply.	Need to follow as per BRPL TS
20	11.2.10/Transducer Input Module I/ BSES-TS-86-CRP-R2	CRP	Technical Specification	This application is required for Transformer feeders only and can be offered as per site requirement for transformer. Please mention no. of transducer input modules required.	Transducer 4 – 20mA inputs shall be required for as per site requirements.	At the time of DDE
21	11.2.11 RTD inputs / BSES-TS-86-CRP-R2	CRP	Technical Specification	This application is required for Transformer feeders only and can be offered as per site requirement for transformer. Please mention no. of RTD inputs required.	Resistance Temperature detection inputs shall be required as per site requirements.	At the time of DDE

22	10.2.12 PT100 /BSES-TS-86-CRP-R1	CRP	Technical Specification	This application is required for Transformer feeders only and can be offered as per site requirement for transformer. Please mention no. of PT100 inputs required.	PT 100 inputs shall be required as per site requirements.	At the time of DDE
23	Remote End LDR Confi+Standalone Commisiong Support	CRP	Technical Specification	We understhad that any Retrofitting work & accessories not required.		Complete commissioning of LDR shall be in the bidder scope.
24	11.3.6 Time Synchronization/ BSES-TS-86-CRP-R2	CRP	Technical Specification	PTP shall be applicable for Process Bus Projects only,here it shall not be applicable.	All relays shall be capable of being synchronized with the system clock through SCADA, PC/Laptop, SNTP, IRIG-B, PTP.	Need to follow as per BRPL TS
25	8 Training /Technical spec for SCADA S/s Automation System_R2	SCADA	Technical Specification	One Time training For 5 persons for 2-3 days shall be offered either at Siemens/BRPL office.	Training at lab/factory	Need to follow as per BRPL TS
26	8 Training /Technical spec for SCADA S/s Automation System_R2	SCADA	Technical Specification	Training Expenses (Air & Local Travel, boarding and Lodging shall be taken care by BRPL	Training at lab/factory	Need to follow as per BRPL TS
27	ANNEXURE- C – SPARES REQUIREMENT / Technical spec for SCADA S/s Automation System_R2	SCADA	Technical Specification	We understand that following spares are not applicable for this tender	SCADA SPARES	Spares mentioned in RTU specification shall be in scope of the bidder & shall be supply along with equipment.
28	10.12 Annual Maintenance Contract / Technical spec for SCADA S/s Automation System_R2	SCADA	Technical Specification	We understand that any type of AMC is not applicable for this tender. Kindly clarify.	AMC period of 3 years	If offered RTU and SAS system are first of its kind in BRPL ,then AMC is mandatory
29	5.0 RTU SOFTWARE REQUIREMENTS Technical spec for SCADA S/s Automation System_R2	SCADA	Technical Specification	Any PLC license is not applicable for Siemens solution and shall not be offered.	PLC License	At the time of DDE
30	General	SCADA	Technical Specification	Our scope shall be limited upto station end only.Any integration activity with control center shall be taken care by BRPL	Control Center Integration	Integration activity with control center shall be taken care by bidder
31	4.25 Panel Size & Hardware capacity space for future use / Technical spec for SCADA S/s Automation System_R2	SCADA	Technical Specification	We shall try to optimize the sapce avalibility during engineering stage,however 50% unused space avaialibility cannot be guaraneteed	The RTU system shall have the capacity of accommodating additional 50% of the basic I/O counts by addition of hardware such as modules, racks, panels, Terminal blocks of basic I/O counts.	At the time of DDE
32	4.29 Ethernet Switch Panel/ Technical spec for SCADA S/s Automation System_R2	SCADA	Technical Specification	1.We understand that for 66kV side, Ethernet Swithces shall be mounted in CRPs/RTU Panel 2. For 11kv side, the same can be mounted at switchgear Panel also.	Ethernet Switch Panel	For 11kv side, the Ethernet switches shall be mounted inside Ethernet Switch Panel.
33	General	SCADA	Technical Specification	Please confirm the number of DI/DO/AI points required in each RTU	RTU configuration	Need to follow as per BRPL TS
34	Annexure E SCADA ADAPTATION AND INTEGRATION SERVICES/ Technical spec for SCADA S/s Automation System_R2	SCADA	Technical Specification	Please provide the BOQ of SCADA adaptation material and services required for this tender.	SCADA Adpatation	Need to follow as per BRPL TS
35			**General**			

36	Respective clause of Type Test Report	General	Respective Technical Specification	Validity of Type Test report / certificate are as per latest CEA guideline. In some cases, if reports are older than the stipulated time line, in that case declaration to be given by OEM that there is no change in Type Tested product design. Repetation of Type Test / and special tests are not considered.	Validity of Type Test Report	Submission of Type test report for not more than five years old which should confirm that there is not any change in design which is going to be supply in this bid
37	Clause no. 1	General	Volume- I: Training & Inspection.	Training shall be provided by us, Air tickets, conveyence, boarding/ lodging, meals and any kind of allowances are not in our scope	Training of BRPL Officials	Need to follow as per BRPL TS
38	BOQ	General	BOQ	Molarband have 11kV APFC 4 Stage, 3.6 MVAR capacitor bank with motorized isolator but Vamasundari have not 11kV APFC 4 Stage, 3.6 MVAR capacitor bank	Please Confirm	Yes, As there is no 2A-2B arrangement
39	BOQ	General	BOQ	11kV VCB switchgear with numerical protective relays Capacitor (7.2 MVAR) & 11kV VCB switchgear with numerical protective relays Capacitor (3.6 MVAR) have in Molarband But Vamasundri have not these panal	Please Confirm	Yes, As there is no 2A-2B arrangement
40	BOQ	General	BOQ	Molarband have 11 kV Bus Duct But vamasundri not have Bus duct.	Please Confirm	Yes, refere the tender layout. In Mularbandh 11kV arrangement is in U shape and in Vamasundari straight formation. However the complete & detailed design of substation is in bidder's scope.

Ref: Smvs/SDI-GRD-ISP/I-15895/25-26

Customer: BRPL

ANNEXURE - AA

COMMENTS ON TECHNICAL SPECIFICATIONS

Sr. No.	Documenr	Query type	Clause No	Page NO	As per specifications	Comments / Clarifications	Reply from BRPL
1	Technical Specification of HT Indoor Switchgear (33 & 11kV)	11kV Switchgear	4.3	4 of 62	Enclosure Material	We will be offering Powder coated CRCA Sheet pretreated with 7 tank process against pregalvanised CRCA steel mentioned in the specifications. Kindly confirm	Need to follow as per BRPL Technical Specifications (TS)
2	Technical Specification of HT Indoor Switchgear (33 & 11kV)	11kV Switchgear	4.4	4 of 62	Dimension of the panel	We understand that there is not existing 11kV VCB Panel at both Grid. Kindly Confirm.	Yes, both are new Sub-staions
3	Technical Specification of HT Indoor Switchgear (33 & 11kV)	11kV Switchgear	4.7	4 of 62	Transperant inspection window for cable compartment at a height of cable termination	It is not recommended to have inspection window at cable compartment of IAC panel. Hence may be deleted.	Need to follow as per BRPL TS
4	Technical Specification of HT Indoor Switchgear (33 & 11kV)	11kV Switchgear	4.8	4 of 62	BUS End cable boc - for direct cable feeder from BUS	Kindly confirm where and how many BUS end cable box do you need as same is not showing in SLD	Need to follow as per BRPL TS
5	Technical Specification of HT Indoor Switchgear (33 & 11kV)	11kV Switchgear	4.17	5 of 62	Panel Base Frame : Steel Base frame as per manufacturer's standard.	Our panels are designed to be mounted directly on the foundation hence separate base frame is not required hence not considered. Our VCB is floor rolled and can be commissioned directly by grouting the foundation bolts in the floor concrete, separate base frame is not required for commissioning. Kindly confirm, If the separate base frame of ISMC channel is required.	okay, noted
6	Technical Specification of HT Indoor Switchgear (33 & 11kV)	11kV Switchgear	9.3	10 of 62	Mounting of PT on the panel top is also not acceptable.	In case of 11kV we have offered drawout Line PT mounted on rear top of the panel and same is supplied earlier to BRPL. Kindly confirm	okay, noted
7	Technical Specification of HT Indoor Switchgear (33 & 11kV)	11kV Switchgear	12.4	12 of 62	Energy meter is not in supplier's scope. Only space and CT/PT wiring is to be provided in all panels except bus coupler and bus PT. Space for Energy meter shall be 200(w) X 350(h) mm2	Ok. We understand that Energy meter shall be supplied as per separate BOQ Line item	Yes,Energy Meter shall be supplied by bidder and it is separate line item in BOQ.
8	Technical Specification of HT Indoor Switchgear (33 & 11kV)	11kV Switchgear	Annexure-E	48 of 62	ANNEXURE – E – SPARES REQUIREMENT 8 Bursting disc / pressure relief plate complete	Not applicable for AIS VCB	Need to follow as per BRPL TS
	General						
9		General			Type test	Offered panels are already type tested, we will not envisazed repeatation of any type test.	Type test report should not be older than 10 years subject to there is no design change in the product. CEA guidelines can be followed in the subject matter.
10		General			Special Tools and tackles	No special tools and tackles are required for maintenance and operation of panels, hence not offered.	Tools and tackles are required for maintenance and operation of panels & shall be shared via corrigendum

TECHNICAL DEVIATIONS/Clarification List

Sr. No	Query type	Page Number	Specification Clause Number	Category	Description	Schneider Comments Dated 15-12-25	BSES Reply
	11kV SWITCHGEAR PANEL						
1	BSES-TS-66-HTSWG-R0	Page 3 of 62	1.0	Clarification/Comments	This specification covers the design, manufacture, testing, supply, erection & commissioning of 33kV and 11kV	Our scope is limited to supply of HT switchgear (11kV) only.	OK
2	BSES-TS-66-HTSWG-R0	Page 4 of 62	4.2	Deviation	Degree of protection low voltage compartment - IP5X	Overall 'Degree of Protection' of the Complete SWGR will be IP4X.	Shall be as per recent earlier supply
3	BSES-TS-66-HTSWG-R0	Page 4 of 62	4.3	Clarification/Comments	Enclosure Material	The Enclosure offered will be in Line with Type tested Design	Shall be as per recent earlier supply
4	BSES-TS-66-HTSWG-R0	Page 4 of 62	4.4	Clarification/Comments	Dimensions of Panel - Height of Panel maximum 2700mm.	The Enclosure offered will be in Line with Type tested Design	Shall be as per recent earlier supply
5	BSES-TS-66-HTSWG-R0	Page 4 of 62	4.6	Clarification/Comments	Compartments	Current transformers are located in the cable compartment. The Line VT will be mounted on VCB of the associated feeder panel. Separare vertical will be provided for Bus PT.	BusPT shall be seperate panel
6	BSES-TS-66-HTSWG-R0	Page 4 of 62	4.8	Clarification/Comments	Bus end cable box	Not applicable.	
7	BSES-TS-66-HTSWG-R0	Page 4 of 62	4.14	Clarification/Comments	Bus Bar Support Insulators	The busbars in our panels are supported on integral epoxy spouts. Bus support insulators are not applicable for our design.	Shall be as per recent earlier supply
8	BSES-TS-66-HTSWG-R0	Page 5 of 62	4.15	Clarification/Comments	Gasket - Neoprene & Covers : SS Bolts	Gasket is not applicable for offered type tested panels. Covers Bolts as per Schneider type tested Panel .	Shall be as per recent earlier supply
9	BSES-TS-66-HTSWG-R0	Page 5 of 62	4.16	Deviation	Required HV cable termination height in the cable compartment 650 mm for 11 KV. 1000mm for 33 KV.	The same shall be as per type tested design.	Shall be as per recent earlier supply
10	BSES-TS-66-HTSWG-R0	Page 5 of 62	4.17	Clarification/Comments	Base frame	Please note that the offered panels are directly floor mounted and hence base frames/channels shall not be required. Hence, only anchor bolts shall be supplied with panels for securing the panels on the floor.	But no seperate trolley shall be required for breaker rack in and out
11	BSES-TS-66-HTSWG-R0	Page 6 of 62	5.5	Deviation	Tulip contact shall be provided without any gap between contacts.	Breakers shall have finger contacts in line with our type tested design.	ok
12	BSES-TS-66-HTSWG-R0	Page 7 of 62	6.1.2	Clarification/Comments	Breaker compartment door closing : Should be possible even when breaker is in isolated position.	Breaker Compartment door closing is possible in Test as well as Isolated poistion of VCB	ok
13	BSES-TS-66-HTSWG-R0	Page 10 of 62	7.0	Deviation	Surge arrestor	Gapless metal oxide type surge arrestors shall be provided for motor / capacitor and dry type transformer feeders only. The same shall be suitable for 2.5pu. Additional RC circuitry for the same is not envisaged. Surge arrestor are provide with class 2.	Shall be class 3
14	BSES-TS-66-HTSWG-R0	Page 10 of 62	8.0	Clarification/Comments	Current Tranformer	CTs shall be epoxy cast wound / ring type. The same shall be suitable for withstanding the fault STC for 1sec. The VA burden for CTs shall be as per our offer BOM. Detailed calculation in support of the same shall be furnished during detail engineering in the event of an order. The CTs are designed and tested in line with IEC 61869-2. Minimum CT primary current shall be 50A.	Shall be strictly as per SLD and specfication
15	BSES-TS-66-HTSWG-R0	Page 10 of 62	8.3	Clarification/Comments	CBCT : If specified, bidder shall clearly mention his proposal for mounting the same.	CBCT's are not shown in SLD. Hence not considered while preparing the offer.	OK
16	BSES-TS-66-HTSWG-R0	Page 10 of 62	9.0	Clarification/Comments	Voltage Transformer	VTs shall be epoxy cast dry type. The VA burden for VTs shall be as per our offer BOM. Detailed calculation in support of the same shall be furnished during detail engineering in the event of an order. The VTs are designed and tested in line with IEC 61869-3. Line PT shall be mounted in breaker trolley only. Same shall be in line with 11 KV HT panel project at G7 Dwarka - executed by schneider for BSES Through Sterling.	Shall be strictly as per SLD and specfication
	BSES-TS-66-HTSWG-R0	Page 10 of 62	9.3	Deviation	Mounting of PT on the breaker truck is not acceptable.	In our Design, Line PT is Mounted on VCB Trolley Only. Please allow us to Mount Line PT on VCB. For Bus PT, Standalone PT Panel will be offered.	Shall be as per recent earlier supply
17	BSES-TS-66-HTSWG-R0	Page 11 of 62	12.0	Clarification/Comments	Meters	In place of Analog Ammeter and Voltmeter -we will provide Digital Ammeter & Voltmeter . MFM shall be Schneider make - MODEL EM6400NG	OK. MFM model shall be EM6400NG+

18	BSES-TS-66-HTSWG-R0	Page 13 of 62	13.2	Clarification/Comments	Annunciator (For 33kV Panels only)	The BOQ includes Station Trafo Feeders. But Trafo Fault relays, Annunciator and hooter for that feeder are not shown in the BOQ/SLD. Hence, not considered while making the offer.	of For 11kv panels
19	BSES-TS-66-HTSWG-R0	Page 15 of 62	15.5	Deviation	Interlocked type	Ferrules will be PVC tube type which will fit Wire and will not move easily.	Shall be as per recent earlier supply
20	BSES-TS-66-HTSWG-R0	Page 16 of 62	16.10 ; 16.11 ; 16.12;	Deviation	Clearance between 2 sets of TB - 100 mm min ; Clearance with cable gland plate - 250 mm min; Clearance between AC / DC set of TB - 100 mm min.	Clearances and wiring will be in line with Schneider's Standard wiring Practices.	ok
21	BSES-TS-66-HTSWG-R0	Page 16 of 62	17.0	Clarification/Comments	Relays	We are offering here the numerical relays with the suitable communication port on LC Rear & Front USB with IEC61850 protocol for SCADA interphase. However Interphasing of this switchboard with SCADA & any additional	Shall be P5 Series Schneider make
22	BSES-TS-66-HTSWG-R0	Page 20 of 62	17.6	Clarification/Comments	Protection Relays for Capacitor panel Neutral unbalance relay (voltage based) for each step	4.As per SLD, we have considered 2step relay of neutral unbalance for 3.6MVR capacitor & 4 step relay of neutral unbalance for 7MVAR capacitor.	Pl clarify
23	BSES-TS-66-HTSWG-R0	Page 31 of 62	22.0	Clarification/Comments	Name Plate	Labels / Name plates shall be provided as per our standard practice.	Shall be as per sepec
24	BSES-TS-66-HTSWG-R0	Page 32 of 62	23.0	Clarification/Comments	Painting	Painting and pre-treatment shall be done as per our standard practice. The final paint shade will be RAL 7032 for CRCA members only .	shall be as per spec
25	BSES-TS-66-HTSWG-R0	Page 32 of 62	24.1	Deviation	Numerical Relay : Micom series of Schneider/Alstom.	Please allow us to offer our advanced Relays i.e. Easergy Power Logic P5 Relays for this case.	P5 Series
26	BSES-TS-66-HTSWG-R0	Page 32 of 62	24.2	Deviation	Transformer monitoring cum AVR relay : A-eberle	Please allow us to offer our ABB Make REU615 as Transformer cum AVR Relay (For 33kV SWGR).	Pl clarify
27	BSES-TS-66-HTSWG-R0	Page 32 of 62	24.3	Deviation	Electromechanical Relays : Alstom/Schneider/Siemens/ABB/ER	Schneider will be offering GE Make of Electromechanical Relays (which previously was Alstom).	Model to be mentioned
28	BSES-TS-66-HTSWG-R0	Page 32 of 62	24.4	Deviation	Aux Relays : ABB/Jyoti/Omran	Schneider will be offering Schneider Make of Aux Relays being OEM.	pl share details
29	BSES-TS-66-HTSWG-R0	Page 32 of 62	24.5	Deviation	Contactors : ABB/Siemens/Telemechanique	Schneider will be offering Schneider Make of Aux contactors being OEM.	ok
30	BSES-TS-66-HTSWG-R0	Page 32 of 62	24.9	Deviation	Test terminal blocks : IMP/Schneider/Alstom	Schneider will be offering JVS Make of TTB which is validated design for Schneider.	As per recent supplies
31	BSES-TS-66-HTSWG-R0	Page 33 of 62	25.1.1	Deviation	Type test validity	Request to please accept Type test validity as Ten years from the date of BID submission as we have not done any changes in Basis Design post Type testing . We don't envisage stage inspection. Hence, FAT shall be done as per our standard practice or as per earlier executed projects of BSES.	
32	BSES-TS-66-HTSWG-R0	Page 33 of 62	25.2.2	Deviation	Temperature rise test : One panel per Purchase order (PO with minimum 10 panels) without any commercial implication to BSES. In-house testing is acceptable.	Request you to exclude this clause. Existing Type test reports will be submitted for the compliance purpose.	ok
33	BSES-TS-66-HTSWG-R0	Page 33 of 62	25.2.3	Deviation	Paint Thickness/ Peel off : To be carried out on panels selected for testing	Paint Thickness Measurement Test will be done on panels selected for testing. Peel off Test will be carried in Sample Material from same Lot (Being a destructive test).	As per recent supplies
34	BSES-TS-66-HTSWG-R0	Page 34 of 62	26.1	Deviation	During transportation/transit and storage, panels may be subjected to outdoor conditions. Hence, packing of each panel shall be weatherproof.	It is not recommended to place the packed panels in Outdoor Environment for prolonged duration. The Standard packing provided is suitable for 'Temporary' placement of panels in Outdoor Environment.	C&M reply required
35	BSES-TS-66-HTSWG-R0	Page 36,39 of 62	30.3, Annexure A- 1.3	Deviation	Suitable handling truck / trolley for lifting and moving the circuit breaker :	The offered VCB design is Floor Rolling. Hence no separate trolly is required for handling of the VCB.	ok
36	BSES-TS-66-HTSWG-R0	Page 40 of 62	Annexure B-1.10	Clarification/Comments	Auxiliary Supply : 220VDC or 48VDC	Please clarify the control Voltage that needs to be considered here.	During DDE

37	BSES-TS-66-HTSWG-R0	Page 43 of 62	Annexure C-1.15.4	Deviation	Temperature rise : 40 deg. C for conventional joints. 55 deg. C for silver plated joints	Temperature Rise in the panel will be in line with Validated/Type tested Design in Line with IEC62271-1:2018 Table 14.	OK
38	BSES-TS-66-HTSWG-R0	Page 44 of 62	Annexure C-1.19	Deviation	Hardware : Stainless Steel	MS Hardware will be provided for this case as per our Standard offering.	ss required
39	BSES-TS-66-HTSWG-R0	Page 44 of 62	Annexure C-1.20	Deviation	Earth bus : Aluminium	Offered Earth bus : Copper in line with Type tested design.	ok
40	BSES-TS-66-HTSWG-R0	Page 46 of 62	Annexure C- 6.0	Deviation	SURGE ARRESTORS : For 11kV Switchgear : Discharge class : 3	We will provide Class 1 Surge Arrestor .	class 3
41	SLD	NA	NA	Deviation	Incomer Feeder - 9R:1CX1000 Sqmm/Phase for 2000A VCB Rating.	Please note that, in offered design, the Max Run Possible for 2000A Feeder Rating is 5R:1CX1000 Sq.mm/Phase which is more than Sufficient for 2000A Feeder Rating. We may not be able to comply higher Cable Runs besides this.	This is BSES requirement
42	SLD	NA	NA	Clarification/Comments	On SLD, MFM not shown for any feeder.	Please note that, Schneider Make EM6400NG MF Meter considered (In line with previous supply) for making the offer.	OK
43				General	Temperature rise test	Since the product is already Type Tested the same is not envisaged.	OK
44				General	Packing	Packing shall be done as per our standard globally approved practice.	C&M reply required
45				General	Accessories & Tools	We don't envisage any special Tools for commissioning & maintenance of panels. Standard accessories to be provided for panle operation.	AS per tender spec
46				General	Handling Truck/trolley fo lifting	Same is not applicable for offered floor rolling type VCB.	ok
47				General	Discharge Class Of Surge Arrestors	Same shall be Class 1 as per the application & in line with 11 KV HT panel project at G7 Dwarka - executed by schneider for BSES Through Sterling .	class 3
48				General	Spares	We have attached Spare list . Pleae provide confirmation on the same.	AS per tender spec
49				General	Panel Dimension	Same shall be as per type tested design.	ok . Type test to be submitted
50	BSES-TS-66-HTSWG-R0		Annexure F1	Clarification/Comments	Incomer CT rating	Incomer CT rating is 2400-1200/1A and breaker rating is 2000A. Request to check the CT ratio as it should not be more than VCB rating	2000-1600/1A
51	BSES-TS-66-HTSWG-R0		Annexure F1	Clarification/Comments	Incomer CT rating	In order to limit the depth of panel main metering/ protection CT and Differential CT shall be part of the single CT. Separate cable adapter panel shall not be required as 9R cables can be accomodated in 1650 depth with 1 set of CT (combined metering/protection and differential) Subject to confimation on below details. 1. CT PS class VK value deviation as per below point. 2. Outer diameter of 1000mm2 cable. Also, Please confirm which details are required to be followed (order of Precedance), Technical Specification or The project specific SLD (e.g BRPL-MOLARBAND-DEE-R-0001)	As per SPEC
52	BSES-TS-66-HTSWG-R0	7 of 60	5.8.4	Clarification/Comments	Test-service position indicator	Test-service position indicator LED provided in control panel.	OK
53	BSES-TS-66-HTSWG-R0	10 of 60	10.1	Clarification/Comments	Earthing arrangement: Through separate earthing truck for bus & feeder	Kindly confirm the earthing truck requirement in this tender.	AS per tender requirement
54	BSES-TS-66-HTSWG-R0	12 of 60	12.2.3	Clarification/Comments	Multifunction meter- Panels where to be provided: All panels except Bus PT Panel	We understood from SLD that MFM is also not applicable for buscoupler panel.	ok
55	BSES-TS-66-HTSWG-R0	18 of 60	17.1.18	Clarification/Comments	Test Facility- Inbuilt with necessary test plugs	Test plugs are not applicable and not in MVI scope.	This is for relay
56	BSES-TS-66-HTSWG-R0	27 of 60	17.16.3	Clarification/Comments	Reset mechanism for lockout relays- Electrical reset type for 11kV outgoing panels only. Hand reset type for all other panels.	In last supply to bses self reset type master trip relays were supplied. Request you to reconfirm the requirement for this tender.	Self reset type
57	BSES-TS-66-HTSWG-R0	33 of 60	24.11	Clarification/Comments	Indicating lamps- make	Indicating lamps shall be of Schneider, Esbee make.	Schneider make
58	BSES-TS-66-HTSWG-R0	43 of 60	Annexure C 1.15.1	Clarification/Comments	Busbar-Tinned Electrolytic copper	Tinning is not applicable for busbar as per our type tested design.	At joints
59	BSES-TS-66-HTSWG-R0	53 of 60	Annexure F5	Clarification/Comments	Note: One BusPT to be considered for each capacitor panel	Bus connected PT is not part of capacitor panel. Separate BusPT panel is considered as per BoQ.	shall be as per SLD

60	-	-	-	Clarification/Comments	Communication network topology	Please confirm the relay communication topology. We understood that the relays are to be connected to ethernet switch in PRP topology. Please reconfirm. No. ports of ethernet switch may vary with combination to meet the port requirement.	Shall be confirmed DDE
66kV GIS module							
1	NIT	SLD-GIS-66KV-01, 02,03	Annexure -B1 (SLD)	Busbar material		We would like to inform that our GIS bus bar material is made of Aluminium. we have type tested our GIS with aluminium conductors and it is performance proven at various executed sites . By using aluminium as the bus bar material, we can meet the rated current requirements of substation.	Okay noted, the valid type test report shall be submitted by the bidder.
2	NIT	SLD-GIS-66KV-01, 02,03	Annexure -B1 (SLD)	CT Location		As per Annexure SLD , it seems 2 seprate CT's are considered after CB , we would like to inform that we can provide all CT cores in single CT enclosure hence additional CT-2 is not required	At the time of DDE
3	NIT	SLD-GIS-66KV-01, 02,03	Annexure -B1 (SLD)	Cable runs		We have considered 2 Runs cable for line bay & single run cable in our offer for TR bay.	Shall be as per tender SLD
4	NIT		PRICE BID Package A Scheme 1 & 2	Bus sectionalizer		As per annexure B1 SLD , we have not received about bus sectionalizer bay details hence we have considered CT data as per bus coupler Also we have proposed bay sequence in our drawings pleae confirm as we have not received bay sequence in between bus sectionalizers We understand only one buscoupler is required at one side of bus sectionalizer Kindly confirm	Query not clear.
5	TECHNICAL SPECIFICATION FOR 66KV GIS BSES-TS-84-66GIS-R0		Cl.No 5.3	Compartment	Switchgear should be completely partinoned from by to bay also each should have seprate compartments for the following- 1.Busbars 2.Circuit breakers 3.Disconnectors 4.Incoming/Outgoing power cables 5. Local control cabinet	Please note in our 145kV GIS model due to design compactness Circuit breaker and current transformer are in same gas compartment . Its accepted several state power utilities and central utilities like PGCIL and also have proven performance Kindly accept the same .	At the time of DDE
6	TECHNICAL SPECIFICATION FOR 66KV GIS BSES-TS-84-66GIS-R0		Cl.No 12.0	Current transformer Location	Current transformer Shall be located outside the gas compartment.Each current transformer shall be provided such that the enclosure current does not affect the accuracy or the ratio of the device or the conductor current being measured. Provision shall be made to prevent arcing across the enclosure insulation.	We would like to inform that GIS type current transformer is internal component of gas tight enclosure , outside CT is not envisaged Kindly accept the same .	Query not clear.
7	TECHNICAL SPECIFICATION FOR 66KV GIS BSES-TS-84-66GIS-R0		Cl.No 25.11	FAT		We would like to inform that as per IEC 62271-203 we shall perform the following Routine test 1. Dielectric test on main circuit 2. Test on auxiliary and main circuit 3. Measurement of the resistance of the main circuit 4. Tightness Test 5.Design and Visual checks 6. Pressure test for encloser 7. Mechanical operation test 8.Test on auxiliary circuit , Equipment and interlock in the control mechanism 9. Pressure test on partitions Kindly accept the same .	Shall be as per technical specification

8	TECHNICAL SPECIFICATION FOR 66KV GIS BSES-TS-84-66GIS-R0		Cl.No 25.6	Temperature rise Test	_	We have not considered any temperature rise test . We will rovide the test report for the same.	shall be as per technical specification
9	TECHNICAL SPECIFICATION FOR 66KV GIS BSES-TS-84-66GIS-R0		Cl.No 33.17		Capacitive voltage indicator	Please note in case of HV GIS capacitive voltage detection can be achieved by providing cable termination kit with capacitive tap facility by using that tap residual voltage can be detected hence Capacitive voltage indicator not considered.	shall be as per technical specification
POWER TRANSFORMER / Oil Filled Transformer							
1	CRP			Clarification/Comments	RTCC PANEL	AVR Relay is considered for Transfromer feeder in 66kV C&R Panel as per specification . Hence RTCC is not considered in Schneider Scope	okay, noted
2	TypeTest					We have not considered any Type Test , short circuit test & any others special test in the Schneider Scope. If required same shall be conducted during execution with additional time & cost impact.	Please submit type test report for not more than five years old which should confirm that there is not any change in design which is going to be supply in this bid
RTU PANEL							
1	Specification no – BSES-TS-86-CRP-R2					Annexure- A data sheet not provided	Annexure- A is SCADA signal list & it is provided
2	Specification no – BSES-TS-86-CRP-R2					Recommended spares and consumables for five years operations not offered.	bidder is to provide list of Recommended spares and consumables for five years operations
3	Specification no – BSES-TS-86-CRP-R2					5 days Training on CRP and SAS at site for 5 Engineers of BSES only offered. additional requirement of man-days will have price implication . Arranging of training room at site not included in our scope.	okay, noted
4	Specification no – BSES-TS-86-CRP-R2					AMC for 3 Years not offered.	If offered RTU and SAS system are first of its kind in BRPL ,then AMC is mandatory
5	Specification no – BSES-TS-86-CRP-R2					During AMC period all the issues pertaining to RTU/Gateway/BCU should be handled by OEM at site(this included unlimited site visit)- Not offered	As per point of 4
6	Specification no – BSES-TS-86-CRP-R2					BCU/BCPU offered with dual power supply source and dual power supply in single card.	BCU/BCPU offered with dual power supply source and dual power supply shall be in dual card.
7	Specification no – BSES-TS-86-CRP-R2					Air-conditioner for RTU panel not considered. Fan with filters provided in RTU Panel.	Need to follow as per BRPL TS
8	Specification no – BSES-TS-86-CRP-R2					FAT expenses for customer personnel not in our scope.	Need to follow as per BRPL TS
9	Specification no – BSES-TS-86-CRP-R2					1. SCADA Spares offered as per the clause Tabele 8 of TS for SCADA specification 2. maintenance tools and tackles not offered 3. Any type of Tool and tackles not offered.	SCADA spares shall be as per ANNEXURE- C – SPARES REQUIREMENT
10	Specification no – BSES-TS-86-CRP-R2					We have offered P14x relays with five fault records.	Need to follow as per BRPL TS
11	Specification no – BSES-TS-86-CRP-R2					Packing : honey comb packing only offered suitable for indoor storage. Sea worthy packing not offered	Need to follow as per BRPL TS
12	TECHNICAL SPECIFICATION FOR SCADA NETWORK & INTEGRATION				bses already has SCADA Control Centre	Integration at bses Control scada not our scope of works	Integration activity with control center shall be taken care by bidder
GENERAL							
1	GENERAL			Clarification/Comments	Soil Bearing Capacity Report	Soil Bearing Capacity Report is not available in the tender documents for Scheme 2	Report is available & shall be shared

2	GENERAL			Clarification/Comments	Soil Resistivity Report	Soil Resistivity Report is not available in the tender documents. Please provide the same for Earthing Material estimation.	Report is available & shall be shared
3	GENERAL			Clarification/Comments	AUTOCAD	Please provide AutoCAD file for Layout	

S. No.	Pg. No.	Cl. Ref.	Tender Clause	Clarification Requested	BRPL Reply
1	Page 5 of 22	Sl No. 1 Clause OEM/EPC	The bidder shall be an EPC Company engaged in turnkey execution of 33kV or higher voltage grade GIS/AIS Grid Substation works for the last three (03) years. EPC Bidder shall supply GIS required for the Grid Sub-station works from the manufacturer meeting Qualification Criteria mentioned in Sl No. 1-5 of QR-01 for offered GIS rating (mandatory to furnish the name of GIS - OEM, along with the Bid submitted, E/T/C of GIS panels shall be executed by GIS "OEM" Only). ***Vendor has to declare single GIS OEM name before Reverse Auction.***	The bidder shall be an EPC Company engaged in turnkey execution of 33kV or higher voltage grade GIS/AIS Grid Substation works for the last three (03) years. EPC Bidder shall supply GIS required for the Grid Sub-station works from the manufacturer meeting Qualification Criteria mentioned in Sl No. 1-5 of QR-01 for offered GIS rating (mandatory to furnish the name of GIS - OEM, along with the Bid submitted, E/T/C of GIS panels shall be executed by GIS "OEM" Only). ***Vendor will declare single GIS OEM name within 30 days of LOA placement*** Further we request you to please freeze Power transformer make as well in same declaration.	No Deviation allowed
2	Page 11 of 22	Clause 4 Tender Fees	Fee Non-refundable demand draft or online transfer of the requisite amount through IMPS/NEFT/RTGS for Rs 1,180/-, Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.03 5 EMD Online transfer of the requisite amount through IMPS/NEFT/RTGS or FD or BG in the prescribed stamp paper & format enclosed at APPENDIX I ANNEXURE – 1.05, EMD Details Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.04	Request you to kindly waive off the tender fee in line to similar scope tenders from BYPL	No Deviation allowed
3	Page 11 of 22	Clause 5 EMD	Online transfer of the requisite amount through IMPS/NEFT/RTGS or FD or BG in the prescribed stamp paper & format enclosed at APPENDIX I ANNEXURE – 1.05, EMD Details Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.04	Request you to kindly waive off the EMD in line to similar scope tenders from BYPL	No Deviation allowed
4	Page 17 of 22	Clause No 13.01	Bids shall remain valid for 180 days from the due date of submission of the Bid.	Due to significant market volatility, we propose revising the clause as follows: 'Bid validity shall be 45 days from the submission due date". Further we propose capital items like Power Transformer and cables on IEEMA PVC basis, with base date of one month prior to opening of the Bid.'	No Deviation allowed
5	Page 22 of 22	34.01	"PRIORITY OF CONTRACT DOCUMENTS i) Contract Agreement/Purchase Order. (a)Special Conditions of Contract (b)General Conditions of Contract (ii)The Letter of Acceptance/ Intent (iii)Agreed Minutes of the Tender Negotiation Meetings (iv) Agreed Minutes of the Tender Technical Meetings (v) The Priced Bill of Quantities (vi)The Technical Specifications / Scope of work (vii)The Tender document, including all Appendices and/or Addenda, Corrigendum the latest taking precedence."	We understand that Agreed Commercial & Technical deviations be made part of Letter of Acceptance / Intent as well as Contract Agreement / Purchase Order. Also, it will have higher order of priority, Please confirm.	Okay. Noted
6	Page 22 of 22	34.01	In the event of any conflict between the above-mentioned documents, the more stringent requirement or conditions which shall be favourable to the company shall govern and the decision of the company/BRPL shall be final and binding upon the parties.	This clause is in direct contradiction to above list of priority of documents. We request you to kindly delete this clause.	No Deviation allowed
7	Page 2 of 22	Bid Form	We agree to abide by this Bid for 180 days from the due date of bid submission and it shall remain binding upon us and may be accepted at any time before the expiration of that period.	Due to significant market volatility, we propose revising the clause as follows: 'Bid validity shall be 45 days from the submission due date". Further we propose capital items like Power Transformer and cables on IEEMA PVC basis, with base date of one month prior to opening of the Bid.'	No Deviation allowed
8	Page 17 of 22	ANNEXURE – 1.17 - 12	The original price bids submitted by the bidders shall be proportionately reduced for each line item, based on the final all-inclusive prices determined at the conclusion of the auction event, to arrive at the final contract value.	We request you to allow submission of final billing breakup post conclusion of RA. Same shall be used for LOA/PO/Contract agreement.	Okay. Noted
9	Page 5 of 48	GENERAL CONDITIONS OF CONTRACT (GCC)	The scope includes supply of all barricading, free issued materials (including installation, transportation, loading & unloading), dewatering, watch and ward and transportation of scrap (generated at Site), balance free-issued material, dismantled material from site to BRPL store including loading & unloading and no additional charges shall be paid against these activities. Used barricading material will be taken back by bidder soon after job is handed over or as directed by BRPL Engineer-In-Charge (E-I-C). No additional cost for these items will be paid to the Bidder	Please note there is no free issue item & scrap management pertaining to Package A, being green field packages.	There are free issue items. Scrap Management during execution is in Bidder;s scope
10	Page 6 of 48	GENERAL CONDITIONS OF CONTRACT (GCC)	Variations in quantities or additional requirements, if any, will be communicated to the successful Bidder during project execution, with site conditions potentially influencing such changes.	"1. We propose to restrict quantity variation as follows: Quantity variation to be within +/- 10% for all items. 2. We propose that Either Party shall have the right to propose changes to the other Party that are considered necessary or desirable to improve the quality, efficiency or safety of the works agreed under the Contract. The change shall be binding upon mutual acceptance by both the Parties in writing."	No Deviation allowed
11	Page 7 of 48	GENERAL CONDITIONS OF CONTRACT (GCC)	Necessary Statutory Clearances from CEI of Delhi & any other authority for energizing shall be in the scope of the Bidder. Electrical Inspector Clearance fees shall be in Bidder's scope. The related fees, payments and pursuance work shall be in scope of Bidder only	Our scope wrt statutory clearances shall be limited to CEIG approval. Further we request BRPL to support in securing these approvals (CEI & other authorities) in expedite manner as we are not considering any delays in securing these approval into our consideration. The necessary fee towards CEI approvals shall be paid directly by BRPL.	NO Deviation allowed. BRPL will provide necessary help whereever required
12	Page 7 of 48	GENERAL CONDITIONS OF CONTRACT (GCC)	The Contractor shall procure necessary permissions (e.g., road cutting clearance) from road owning agencies & local authorities; statutory fees will be borne by BRPL. There will be no price escalation given to bidder even if there is delay in the project due to ROW permission	For Package A, we understand that we will be getting clear fronts/ site to undertake the scope of works. We are not foreseeing any tree and road cutting in our scope. Any delay in providing the front clearance, shall be suitably compensated on time and cost part.	As per Tender conditions
13	Page 11 of 48	GENERAL CONDITIONS OF CONTRACT (GCC) - Free Issue Material	Free Issue Materials/Equipments	Not Applicable	There are free issue items.
14	Page 13 of 48	GENERAL CONDITIONS OF CONTRACT (GCC) - Inspection & Test Charges	The Goods shall be subjected to inspection by the Purchaser and/or a third-party inspection agency appointed by the Purchaser. Such inspections shall include stage-wise and final inspections as per the mutually agreed Quality Assurance/Quality Control (QA/QC) procedures. Additionally, inspections may be conducted at the Purchaser's site or storage facilities. The Contractor shall repair or replace any damaged or rejected Goods to the satisfaction of the Purchaser at no additional cost.	We would like to inform you that stage-wise inspection is not envisaged dueto strict execution timelines. However, we will ensure that all necessary quality checks are completed and that the final inspection meets the required standards.	As per Tender conditions
15	Page 17 of 48	GENERAL CONDITIONS OF CONTRACT (GCC) - Building and Other Construction Workers (BOCW) Act (Applicable for All Civil and Construction Works)	The Building and Other Construction Workers (BOCW) Act applies to any establishment employing or having employed ten or more building workers at any time during the preceding twelve months in any building or construction work. The Contractor performing such construction work must register with the Registering Officer under Section 7 of the BOCW Act, along with applicable state government rules, and submit the Registration Certificate issued by the Registering Officer of the concerned State Government's Labour Department.	We assume the contract award shall be on divisible basis. Hence, we will be considering BOCW only on civil portion. Please confirm whether our understanding is correct.	A single composite order shall be issued with Supply, Services and Civil portions. Please check applicability at your end.

	Page 19 of 48	Clause 37.2.1. , FOR SUPPLY OF EQUIPMENT AND MATERIALS:	i. 5% of the total supply contract price shall be paid as initial interest-free advance upon fulfilment of: a) Acceptance of LOI/PO, b) Submission of Bank Guarantee (BG) of equivalent amount valid up to completion period/handing over, whichever is earlier plus 3 months claim period, and c) Submission of Contract Performance Bank Guarantee (CPBG) of 10% of the contract price valid up to completion period/handing over, whichever is earlier plus 3 months claim period. In case of delay, the BG shall be extended suitably. The advance shall be adjusted against R/Bills. ii. 5% of the total supply contract price shall be paid as interest-free advance against submission of BG of equivalent amount valid up to completion period/handing over, whichever is earlier plus 3 months claim period, approval of drawings under Category 1 of major equipment (shall be mutually agreed at the time of award), Quality Plans, Pert Chart, Network Diagram, Field Quality Plan, posting of Project Manager and commencement of the first milestone of the work mutually agreed. In case of delay, the BG shall be extended suitably. The advance shall be adjusted against R/Bills. iii. 60% prorata of supply value item-wise shall be payable against R/A bills for supply of equipments and materials within 30 days against receipt & acceptance of material at site and submission of following documents duly certified by BRPL Project-in charge, complete in all respects: a) Signed copy of accepted Purchase Order (for first payment) b) LR / RR / BL as applicable c) Challan as applicable d) One (01) copy of Contractor's detailed Recipient Invoice showing Commodity description, quantity, unit price, total price and basis of delivery, and being 100% of the value of the consignment claimed. e) One (01) copy of Contractor's transporter invoice duly receipted by BRPL Stores & Original certificate issued by BRPL confirming receipt of the subject material at Stores/Site and acceptance of the same as per the provisions of the contract. f) One (01) copy Packing List / Detailed Packing List g) Approved Test certificates / Quality certificates, if applicable h) Certificate of Origin, if applicable i) Material Dispatch Clearance Certificate (MDCC) j) Insurance Policy / Certificate, if applicable k) Warranty / Guarantee Certificate, if applicable l) Checklist for bill submission iv. 20% prorata on account of supply value of the actual executed value after installation/erection of material duly certified by BRPL Project-in-Charge. v. Balance 10% on account of supply value of the actual executed value shall be paid in 30 days after completion of successful acceptance testing, commissioning and handing over of complete systems duly certified by BRPL Engineer-in-Charge specified in the tender and on submission of performance Bank Guarantee of 10% amount, in	•10% advance against submission of ABG. •75 % within 30 days against receipt of material at site. •10% after installation/erection of equipment •5% after completion of acceptance testing, commissioning and Handing Over and submission of PBG of 10% of contract value	No Deviation allowed
	Page 19-20 of 48	Clause 37.2.2. , FOR ERECTION, INSTALLATION AND TESTING & COMMISSIONING/CIVIL:	10% of the total services contract price shall be paid as initial interest-free advance upon fulfilment of: a) Acceptance of LOI/PO, b) Submission of Bank Guarantee (BG) of equivalent amount valid up to completion period/handing over, whichever is earlier plus 3 months claim period, and c) Submission of Contract Performance Bank Guarantee (CPBG) of 10% of the contract price valid up to completion period/handing over, whichever is earlier plus 3 months claim period. In case of delay, the BG shall be extended suitably. The advance shall be adjusted against R/Bills. ii. 60% prorata of total services value shall be payable against R/A bills payable within 30 days after completion duly certified by Engineer in charge. iii. 20% prorata of total services value shall be payable against R/A bills payable within 30 days after completion of successful acceptance testing, commissioning and handing over of complete systems duly certified by BRPL Engineer-in-Charge specified in the tender. iv. Balance 10% on account of total services value of the actual executed value shall be paid in 45 days on submission of Performance Bank Guarantee of 10% amount, in our format valid up to a defect liability period for 24 months from the date of handing over of the scheme including submission of Electrical Inspector Clearance Certificate, Compliance of final punch point, No Demand Certificate, Letter of Indemnity by the Contractor (The format of No Demand Certificate and Letter of Indemnity are attached as Annexure) and after reconciliation & adjustments of payments, if any towards quantities of materials issued from purchaser's stock and consumed by the contractor for expeditious completion of the job.	Service: •10% advance against submission of ABG. •75% within 45 days after installation/erection of material. •10% within 30 days after testing & commissioning. •5% after completion of successful acceptance testing, commissioning and handing over of complete system and submission of Bank Guarantee of 10% of contract value. If project commissioning is delayed beyond 04 months due to reasons not attributable to the bidder the balance 05% payment on account of handing over of complete project will be released. Civil: •10% as advance against submission of ABG. •80% shall be payable against R/A biils payable within 30 days. •10% shall be payable after completion against PBG	No Deviation allowed
17	Page 23 of 48	Clause No 39, Defects Liability Period/ Warranty / Guarantee	The Guarantee Period will be equipment/service/work specific and shall be as specified in the Technical Specifications for the equipment/material/service/work and where technical specifications are not part of contract documents or guarantee period is not specified in the technical specifications, the Defect Liability Period shall be twenty-four (24) months from the date of Final Takeover of Packages by the Purchaser. The Bidder warrants the satisfactory performance of all works, equipment, and materials supplied as per the contract scope for twenty-four (24) months generally for substations or individual packages, and for a period of sixty (60) months for specified equipment such as GIS, PTR, Panels, CRP, Cable & Joints, from the date of Final Takeover.	The Guarantee Period will be equipment/service/work specific and shall be as specified in the Technical Specifications for the equipment/material/service/work and where technical specifications are not part of contract documents or guarantee period is not specified in the technical specifications, the Defect Liability Period shall be twenty-four (24) months from the date of Final Takeover of Packages or 30 months from the date of supply whichever is **earlier** by the Purchaser. The Bidder warrants the satisfactory performance of all works, equipment, and materials supplied as per the contract scope for twenty-four (24) months generally for substations or individual packages, and for a period of sixty (60) months for specified equipment such as GIS, PTR, Panels, CRP, Cable & Joints, from the date of Final Takeover or 66 months from the date of supply whichever is **earlier .**	No Deviation allowed
18	Page 24 of 48	Clause No 39.4, Defects Liability Period/ Warranty / Guarantee	The works shall be guaranteed against any defect or failure which may arise due to faulty materials, design or workmanship for a period of 24 months from the date of handing over of the substation.	The works shall be guaranteed against any defect or failure which may arise due to faulty materials, design or workmanship for a period of 24 months from the date of handing over of the substation or **30 months from the date of supply whichever is earlier.**	No Deviation allowed
20	Page 25 of 48	Clause No 41.1	The Contractor shall ensure the availability of spare parts and necessary technical support for a minimum period of ten (10) years following the completion of the equipment guarantee period under the contract. The Contractor must notify BRPL at least twelve (12) months in advance of the End-of-Life Support for the supplied product or technology.	The Contractor shall ensure the availability of spare parts and necessary technical support for a minimum period of ten (10) years following the completion of supplies under the contract. The Contractor must notify BRPL at least three (3) months in advance of the End-of-Life Support for the supplied product or technology.	No Deviation allowed
21	Page 27 of 48	Clause No 47.1.4	The maximum liquidated damages (LD) for delay shall not exceed 10% of the Contract Value.	The maximum liquidated damages (LD) for delay shall not exceed 5% of undelivered portion under the contract.	No Deviation allowed
22	Page 27 of 48	Clause No 47.2.1	The overall Maximum LD for delay is 10% of the Contract Value	The overall Maximum LD for delay is 5% of the undelivered portion of the Contract.	No Deviation allowed
23	Page 27 of 48	Clause No 47.3	Penalty for non-compliance of safety practices and site cleanliness: A penalty of 2.5% of bill amount shall be levied in each case of non-compliance of safety practices and site cleanliness.	We are already executing multiple projects from BSES. We are diligently following the safety and cleanliness guidelines of BSES, and this is also one of our inherent pillars for project business. Hence, we request you to remove this penalty clause.	No Deviation allowed
24	Page No. 1033 of 2402	Training & Inspection	Inspection Charges: Cost of all the inspections within India and abroad (including re inspections) including flight Tickets, local conveyance, Boarding and lodging (Minimum 4 Star Hotel for India and Minimum 4 Star for Abroad) shall be in scope of Vendor. The Factory visits will be held at OEM Factory only	We request you to delete this clause, considering the general precedence of customer travel, boarding & lodging in their scope only.	No Deviation allowed
25		General	Price Bid	Requesting you to support with excel format of Price bid.	Okay. Noted

26		General	Geological Data	Requesting you to support with SBC & Resistivity details of site for Vamasundari site. The same shall be utilised for civil and earthing designing .	Issued as Corrigendum -2

ANNEXURE - I					
SL No.	**Bid Clause**	**Query type**	**Description**	**Our Query**	**BSES REPLY**
1	Volume -1	C&M	Completion period	It is mentioned in NIT document that completion period of package -A is 12 months and package -B is 5 months, as the GIS , power transformer , HV cable and other major equipments supplier will not be able supply within this short period , kindly amend the completion period of Package -A to 24 months and Package - B to 18 months .	No deviation allowed
1	Volume -I ITB	C&M	Labour Cess	Kindly confirm BOCW is applicable on total contract value or only erection part of the contract .	A single composite order shall be issued with Supply, Services and Civil portions. Please check applicability at your end.
2	Volume -I ITB	C&M	Event information	Kindly confirm the estimaed value is with GST or without GST	With GST
3	Volume -I GCC	C&M/CIVIL	Road Restoration	Kindly clarify whether the 'Road Restoration' work falls under the scope of the EPC Contractor. If it is included within the EPC scope, we request you to kindly provide the applicable Municipal Rate Chart for road restoration works to enable accurate estimation and inclusion in our proposal.	It is not in Bidder's scope
4	Volume -I GCC -47.2.1	C&M	Overall Liquidated Damages	As per the mentioned clause "The overall Maximum LD for delay is 10% of the Contract Value". But as per RDSS regulation the LD is applicable on the unexecutred parts. So kindly amend the clause.	No deviation allowed
5	Volume -I	C&M	General	Kindly mention the source of fund for this project	Internal
6	Price Bid - Package -B1 - Scheme 6	Package -B1	ISOLATOR,ELEC,66KV;2000AMPS;W/0 E SW	Kindly provide Technical Specification for the mentioned item	
7	Price Bid - Package -B1 & B2	Package -B1	HDPE pipes	1. Kindly provide Technical Specification for the mentioned item 2. Kindly provide BSES approved make list for the mentioned item	
8	Price Bid - Package -A - Scheme 1	General	66kV Bus Post Insulator	Kindly provide Technical Specification for the mentioned item	Shall be shared via corrigendum

ANNEXURE - III					
SL No.	**Bid Clause**	**Query type**	**Description**	**Our Query**	BSES REPLY
1	Volume -I - ITB - Qualification Criteria	C&M	Documents to be submitted By bidder	1. **Undertaking for E/T/C of panels by GIS "OEM" -** We kindly request the removal of this clause from the tender as most GIS OEMs are not agreeable to providing suc an undertaking. 2. Since the vendors from whom we are obtaining quotations are already included in the BSES Approved Vendor List for this tender, we understand that their qualifying documents are already on the record. We therefore request your kind consideration to exempt the requirement of resubmitting qualifying documents for approved vendors.	No deviation allowed
2	Volume -I - ITB - Qualification Criteria -1(b) -	C&M/Technical	***Vendor has to declare single GIS OEM name before Reverse Auction.**	we respectfully request BSES to consider amending the clause to allow bidders to associate with more than one approved GIS OEM prior to the Reverse Auction since restricting the bidder to a single GIS OEM at this stage significantly limits flexibility and may adversely impact participation in the Reverse Auction.	Tender specs to be followed
3	Volume -I - ITB - Qualification Criteria	C&M	Documents to be submitted By bidder	**Undertaking by the bidder for Backup support by OEMs-** 1.Kindly provide any specific format of undertaking if there any . 2. please confirm if the undertaking is to be provided in any Non -judicial Stamp paper or in OEM's firm's letterhead.	OEM Letterhead; Please follow industry standard format
4	Volume -I - ITB - Qualification Criteria	C&M	Bidder shall procure equipment from the approved Bidder list of BRPL for individual items (mentioned in Scope/Specifications).	Most of the approved suppliers are directly participating in this tender; therefore, they are reluctant to submit their offers and related documents, which may result in the requirement of additional time.	Due date for bid submission has been extended up to 05-01-2026 1530 Hrs
5	BOQ- 66kV Control Relay Panel	General Technical	66kV Control Relay Panel Transformer Feeder: 4x	As per SLD there are 3x Transformer bays at Molarbandh ss. However, in the BOQ 4x Transformer CRP has been asked. Please clarify the qty required.	The proposed grid has ultimate planned capacity of 4x31.5 MVA PTRs. However in 3 stages: **Stage-1:** Grid construction for 3 nos. PTRs including all Electrical & Civil works excluding 3rd PTR & associated power cables. Trenches capacity to be built up for 3rd & 4th PTR also. **For 4th PTR GIS bay & CRP to be installed and allocation of designated space for other accessories like trenches, cable sealing, 11kV panels etc. For all calculations & provisions like AC/ DC requirement, battery, battery chargers, RTU & IT infrastructure all 4 PTRs shall be considered. Therefore other than PTR foundation, power & control cables all provisions have to be made for 4th PTR.** **Srage-2:** Installation of 3rd PTR alongwith associated power & control cables. **Srage-3:** Installation of 4th PTR alongwith associated power & control cables and it's 11kV switchgear.
6	BOQ- S.No. 16	General Technical	SCADA RTU: 2x	Please clarify the requirement of 2x RTU at Vemasundari ss. We understand that 1x RTU is required at each station	As per BOQ, only 1x RTU is required at each station.
7	BOQ	General Technical	Spares	We understand that one set of common spares for CRP spares are required for this project. Substation wise one set of spares not required. Kindly clarify.	Spares mentioned in individaul equipment specification shall be in scope of the bidder & shall be supply along with equipment.

8	Technical Specification-66KV Control & Relay Panel	CRP	Voltage Protection: OV, Sync, VT Fail, etc. Frequency Protection: OF, UF, df/dt, etc. Reverse Blocking Function. Local Breaker Backup protection functions. Other protection & control logic functions	We understand the the mentioned functions shall also be acceptableas built-in part of Relay-1. Kindly confirm.	
9	Technical Specification-66KV Control & Relay Panel	CRP	StandBy EF (HV/LV) protection Sensitive EF (HV/LV) protections.	We understand that these functions if required are acceptable as derived functions also. Kindly Confirm.	
10	Technical Specification-66KV Control & Relay Panel	CRP	Protection functions as per site requirements.(shall be decided during detailed engineering) VT fuse fail monitoring Bus-2 VT ckt Voltage Protection: OV, UV, Sync, VT Fail, etc.	We understand that the mentioned features can be achieved through Relay-2.So, any dedicated seperate relay(Relay-1) for the same is not required. Kindly Confirm	
11	Technical Specification-66KV Control & Relay Panel	CRP	Minimum 24 nos i. FO:20 nos LC,1310nm, multimode, 100 Mbit/s. ii. RJ45:4nos(CAT VI usable) Ethernet port copper, 1310nm,100 Mbits/s.	As per Ethernet port configuration, we understand that all numercial relays / IED are required with rear port FO only. Kindly clarify.	
12	Technical Specification-66KV Control & Relay Panel	CRP	CRP SPARES	We understand that, we have to supply spares according to the BOQ only. Kindly clarify.	
13	Technical Specification-66KV Control & Relay Panel	CRP	Energy meter is not in supplier's scope. Only space and CT/VT wiring is to be provided in all panels except bus coupler and bus VT. Space shall be 350 mm (H) x200 mm (W) for flush mounting meter with holes for meter connection, wiring which shall be decided during Engineering.	We understand thet Enery Meter shall be supplied by BRPL and only provision in CRP panel to be provided.	
14	Technical Specification-66KV Control & Relay Panel	CRP	Transducer 4 – 20mA inputs shall be required for as per site requirements.	This application is required for Transformer feeders only and can be offered as per site requirement for transformer. Please mention no. of transducer input modules required.	
15	Technical Specification-66KV Control & Relay Panel	CRP	Resistance Temperature detection inputs shall be required as per site requirements.	This application is required for Transformer feeders only and can be offered as per site requirement for transformer. Please mention no. of RTD inputs required.	
16	Technical Specification-66KV Control & Relay Panel	CRP	PT100 inputs shall be required as per site requirements.	This application is required for Transformer feeders only and can be offered as per site requirement for transformer. Please mention no. of PT100 inputs required.	
17	Technical Specification-66KV Control & Relay Panel	CRP	Remote End LDR Confi+Standalone Commisiong Support	We understhad that any Retrofitting work & accessories not required. Kindly Confirm	
18	Technical Specification-66KV RTU	SCADA	ANNEXURE- C – SPARES REQUIREMENT / Technical spec for SCADA S/s Automation System_R2	We understand that following spares are not applicable for this tender. Kindly Confirm.	Spares mentioned in RTU specification shall be in scope of the bidder & shall be supply along with equipment.
19	Technical Specification-66KV RTU	SCADA	AMC period of 3 years	We understand that any type of AMC is not applicable for this tender. Kindly clarify.	If offered RTU and SAS system are first of its kind in BRPL ,then AMC is mandatory
20	Technical Specification-66KV RTU	SCADA	Ethernet Switch Panel	1.We understand that for 66kV side, Ethernet Swithces shall be mounted in CRPs/RTU Panel 2. For 11kv side, the same can be mounted at switchgear Panel also. Kindly confirm	For 11kv side, the Ethernet switches shall be mounted inside Ethernet Switch Panel.
21	Technical Specification-66KV RTU	SCADA	RTU configuration	Please confirm the number of DI/DO/AI points required in each RTU	Need to follow as per BRPL TS

Siemens Limited

Date 17/12/2025

Pre Bid Queries

CUSTOMER: BRPL (BSES Rajdhani Power Ltd.)
NIT NO: CMC/BR/25-26/FK/PR/KG/1310

S. No.	Section/Sub-section	Query type	Part	Para	Query	Justification	BRPL Response
	General						
1	Respective Technical Specification	General		Respective clause of Type Test Report	Validity of Type Test Report	Validity of Type Test report / certificate are as per latest CEA guideline. In some cases, if reports are older than the stipulated time line, in that case declaration to be given by OEM that there	Type test report should not be older than 10 years subject to there is no design change in the product. CEA guidelines can be followed in the subject matter.
2	Volume- I: Training & Inspection.	General		Clause no. 1	Training of BRPL Officials	Training shall be provided as per training schedule. Related Air tickets, conveyence, boarding/ lodging, meals and any kind of allowances are not in our scope	Need to follow as per BRPL TS
3		General		Reuirement of Type Test & Special test	We have not considered any repetation of Type Test, Special test for this pkg	Any Type Test & Special test are directly linked with over all project cost and delivery schedule	Type test report for not more than five years old which should confirm that there is not any change in design which is going to be supply in this bid
4	Technical Specification	PTR	11.4 of Technical spec	Special tests	Dynamic & Thermal short circuit test & other special tests for Power	We shall offer the earlier supplied Transformer from your approved make.	
5	Technical Specification	General		Spares Maintenance Tools and Tackles	Kindly share the list of spares, Tools & Tackles which to be considered in	There is no separate list as mentioned in Index & Price Schedule.	Tools and tackles are required for maintenance and operation of panels & shall be shared via corrigendum
6	Technical Specification	General		Requirement of tools & spares	In respective specifications, tools & spares are mentioned.	Kindly mention the list of tools with respective make & model number.	Tools and tackles are required for maintenance and operation of panels & shall be shared via corrigendum
7	Technical Specification	General		Switchgear Condition Monitoring	Kindly confirm the requirement of Switchgear Condition Monitoring	In Vamasundari s/s it is mentioned at 11/33kV Sw. Gear specification but in Molarbandh s/s it is not mentioned.	In both sub-station, Switchgear Condition Monitoring need to be considered.
8	BOQ	Battery	Sl No 5	220V Ni-Cd minimum 150AH each(As per battery Sizing calculation &specs) - 2 Set	We assume 2 Set = 2 Banks of min 150AH as One Dual FCBC charger can be connected with 2 Battery banks only. Please confirm	Kindly confirm the requirment.	2 Set = 2 Banks of min 150AH as per One Dual FCBC charger can be connected with 2 Battery banks only. Please confirm
9	Technical Specification for General Design Criteria	Battery	2.1 Major Equipments:	220V Ni-Cad Battery bank As per battery sizing calculation with 2 hours Backup time and minimum 150AH - 2 Set	We assume 2 Set = 2 Banks of min 150AH as One Dual FCBC charger can be connected with 2 Battery banks only. Please confirm	Kindly confirm the requirment.	
10	220V Battery	Battery	General	General	Please specify the following battery parameters : 1. End Cell Voltage 2. Battery Discharge type (High/Medium/low) 3. Battery Bank Rack arrangement (Multi Rack/Single Rack) 4. Maximum Bank Height 5. Tap Cell requirement 6. Cell type- Mono Cell or Block cell	Kindly clarify the requirement details of Battery set.	Please specify the following battery parameters : 1. End Cell Voltage:1.14 2. Battery Discharge type: (High/Medium/l) 3. Battery Bank Rack arrangement : (Multi Rack) 4. Maximum Bank Height 5. Tap Cell requirement 6. Cell type- Mono Cell or Block cell

11	BOQ	Charger	Sl No 6	CHARGER,BTRY,FLOAT CUM BOOST ;220V with DCDB - 1 No	We understand that 1 Nos Dual FCBC Charger with integrated DCDB. Please confirm 2x100% FCBC = DUAL	Kindly confirm the requirment.	yes, confirmed
12	BOQ	General	Sl No 14	Supply of H-pole structure for I/C feeder circuits as per drawing	Please provide the H pole structure drawings for I/C feeder circuits.	Kindly confirm the requirment details	The Design ,supply & erection is in bidder scope as per the prevailing guideline & regulation from CEA & indian std.
13	BOQ	General	Sl No 29	Cable trays including supporting structure as per requirement	Tray can't sustain 66kV Cable weight. Hence, 66kV cable will be laid directly on support arm (angle) please confirm	Kindly confirm the requirement of Cable tray for higher size of Powerr cable	Need to review
14	BOQ	General	Sl No 43	Supply of Zebra Conductor	Understand that IPS aluminium tube is also required in addition to Zebra conductor over H-Pole & without BPI is not	Request you to update the item wise quantity	Yes, The IPS tube to be considered and the quantity to be as per design of H-pole structure.
15	BOQ	General	Sl No 46	11KV Bus Duct	Please share Specification with material of bus & enclosure details	Kindly share the Technical Spec for 11kV Bus duct	Okay, shall be shared via corrigendum
16	Technical Specification for General Design Criteria	General	2.1 Major Equipments:	66/11kV 31.5MVA Power Transformer and NIFPS along with accessories- 2 Sets	In Molarbandh SLD, 3 nos power transformers are shown. Kindly confirm the requirment of related GIS & CRP against guture transformer and related civil works	Confirm the requirment of spare bays related scope	The proposed grid has ultimate planned capacity of 4x31.5 MVA PTRs. However in 3 stages: **Stage-1:** Grid construction for 3 nos. PTRs including all Electrical & Civil works excluding 3rd PTR & associated power cables. Trenches capacity to be built up for 3rd & 4th PTR also. **For 4th PTR GIS bay & CRP to be installed and allocation of designated space for other accessories like trenches, cable sealing, 11kV panels etc.** **For all calculations & provisions like AC/ DC requirement, battery, battery chargers, RTU & IT infrastructure all 4 PTRs shall be considered. Therefore other than PTR foundation, power & control cables all provisions have to be made for 4th PTR.** **Srage-2:** Installation of 3rd PTR alongwith associated power & control cables. **Srage-3:** Installation of 4th PTR alongwith associated power & control cables and it's 11kV switchgear.
17	Technical Specification for General Design Criteria	GIS/General		GIS Cable cellar minimum height 3000mm with spare cable entry provision at least 4 nos circuit.	Please clarify the requirement of spare cable entry provision.	Kindly confirm the requirment	Yes the provision has to be made for future spare cable provisions. Tender specs to be followed.
18	Technical Specification for General Design Criteria	General/CRP		AC and DC Failure Hooter near Security gate at any pole	We understand that AC & DC Failure Hooter circuit will connect Main ACDB & DCDB respectivly. Please confirm	Kindly confirm the requirment	To be finalized during detailed engineering
19	Technical Specification for General Design Criteria	SCADA		Cabling between equipments and RTU	We understand that 11kv side eathernet switch to be mounted on 11kV panel only. Please	Kindly confirm the location of Ethernet switch	
20	Technical Specification for General Design Criteria	General		Free issue and return of items/excess materials from BRPL Stores to Site or Site to BRPL stores shall be in Vendors Scope of work.	Please indicate the distance between BRPL Store to propose Site location.	Kindly confirm the BRPL store location for respective s/s.	
21	Technical Specification for General Design Criteria	General/PTR	10.4 66/11KV Power Transformer	Each Transformer shall be provided with NIFPS along with its cables, one extra N2 cylinder and extra valves.	We understood that the one extra N2 cylinder and extra valves will supply in loose item	Kindly confirm the spare requirement	Need to follow as per BRPL TS
22	Technical Specification for General Design Criteria	PTR	Surge Arrestors in Transformer bays	Surge Arrestors in Transformer bays	Surge Arrester is shown two time (in AIS & GIS part) in Transformer	Kindly confirm the requiremnet of Surge Arrester	Need to follow as per BRPL TS

23	Technical Specification for General Design Criteria	Battery charger	General	General	Please specify the requirement of type of Charger- Online FCBC or Offline FCBC. Online FCBC- Include dropper Diode (in both charger) because it parallally supply load while charging batteries in boost mode. Offline FCBC- Does not include Dropper Diode as When one charger	Please share the Boostmode/Float mode charging Philosophy.	At the time of DDE
24	Technical Specification for General Design Criteria	General/Light protection	3.8	size of the strip s'hall be as per relevant IS/relevant document.	We understood from IEC 62305, multiple type material can be used for the lightning protection. So we have considered it. Please confirm the		Copper strip is required for DSLP protection, Both horizontal & vertical conductors.
25	Technical Specification for General Design Criteria	HVAC	HVAC	Exhaust and Ventilation System	1. Please spefify the design external temperature and indoor temperature. 2. Please speify the requirement of Sequential timer in Specification 3. Please specify the min Air changes requirement for each room in specification 4. We understood that		
26	Technical Specification for General Design Criteria	General/Capaci tor bank	SLD	APFC	Please confirm the cable size for the Capacitor bank for 7.2 MVAR & 3.6MVAR. According to the Specification, the		Need to follow as per BRPL TS SLD
26	Technical Specification for General Design Criteria	General/Capaci tor bank	10.6 11kV APFC Capacitor Bank	APFC	Each capacitor bank shall have one fixed step of 0.9 MVAR and two steps of 1.8 MVAR and last step of 2.7 MVAR	This statement is contradictory with respect to SLD. As the SLD shows that the all the capacitors are having variable step instead of	All the step will be automatic
27	Technical Specification for General Design Criteria	General/Capaci tor bank	4.16: Bus bar arrangement	Suitable for Indoor termination of HT cable size up to 2 x 3C x 300sqmm for each phase	Please confirm the cable size for the Capacitor bank for 7.2 MVAR & 3.6MVAR. According to the SLD, the cable size is listed as 2R x 3C x 400 sqmm.		Need to follow as per BRPL TS SLD
28	Technical Specification & BOQ	General	BOQ : Tools and tackles including testing instruments as per spec	Tools and tackles including testing instruments as per spec	There is no separate list for tools & tackles. Tools & accessories are mentioned in respective specification.	Request you to clearly mention the requirment of Tools & tcackes with make & model number whch to be considered against supply BOQ	Tools and tackles are required for maintenance and operation of panels & shall be shared via corrigendum
29	Technical Specification & BOQ	General	BOQ : Spares (as per specs)	Spares (as per specs)	Please provide the spare list.	Request you to clearly mention the requirment of psares whch to be considered against supply	Spares mentioned in individaul equipment specification shall be in scope of the bidder & shall be supply along with equipment.
30	Technical Specification & BOQ	General	ETC BOQ		Item wise ETC BOQ	Kindly mention the list of free issue item which to be considered against ETC works those are not	Need to follow as per BRPL TS
31	Price Bid	General	Supply BOQ	Supply BOQ	We understand that in main supply item no other accessories, spares & tools are part of	Kindly confirm the requirement of spares and tools which to be considered in price bid.	Okay, shall be shared via corrigendum
	66kV CRP & AUTOMATION						

32	BOQ	CRP	66kV Control Relay Panel	S.No. 4b	66kV Control Relay Panel Transformer Feeder: 4x	As per SLD there are 5x Transformer bays at Molarbandh ss. However, in the BOQ 4x Transformer CRP has been asked. Please clarify.	Tender specto be follow & GIS and CRP to be consider for all 4 number PTR.
33	BOQ	CRP	66kV Control Relay Panel	S.No. 16	SCADA RTU: 2x	Please clarify the requirement of 2x RTU at Vemasundari ss. We	As per BOQ, only 1x RTU is required at each station.
34	BOQ	CRP	Spares			We understand that one set of common spares for CRP spares are required for this project. Substation	Spares mentioned in individaul equipment specification shall be in scope of the bidder & shall be supply along with equipment.
35	BOQ	CRP	Spares			We understand that RTU spares are not required as not asked in the BOQ.	Spares mentioned in RTU specification shall be in scope of the bidder & shall be supply along with equipment.
36	General Design Criteria	CRP	2.2 Item as System		Fiber optic Cable including patch cord, LIU splicing etc. inside substation as well as remote end substation for line differential protection.	Fiber Optic cable between substation is excluded from the scope of work. Kindly confirm.	Fiber Optic cable is in built in the 66kV Power cable (3cx300 sqmm), After cable termination extension of OFC till CRP, LDR and it's accessories like LIU and patch cord etc. are in bidder's scope of Grid substation package for both the sending end and receiving end substations.
37	Technical Specification	CRP	66KV Control & Relay Panel	3.0 CYBER SECURITY 3.12 /RTUs,FRTUs,SCADA, PLC, etc with IEC communications./ BSES-TS-86-CRP-R2	Communication protocol conformance standards shall be followed as per IEC:60870-5-101/ IEC:60870-5-103/ IEC:60870-5-104 and respective clauses. Protocol Security conformance standards shall be followed as per IEC:60870-7, IEC:62351	Our offered relays shall be on IEC61850 protocol. Any other protocOl is not required.	Offered relays shall be on IEC61850 protocol
38	Technical Specification	CRP	66KV Control & Relay Panel	11.5 Protection Relay Requirement for Line CRP (66kV/33kV) **11.5.2 Relay 2: M2FP** /BSES-TS-86-CRP-R2	Voltage Protection: UV, OV, Sync, VT Fail, etc. Auto reclose functions (3phase) with its enable/disable, Reverse Blocking Function.	We understand the the mentioned functions shall also be acceptableas built-in part of Relay-1.	Mentioned functions shall be acceptableas built-in part of Relay-1 & Relay-2 both.
39	Technical Specification	CRP	66KV Control & Relay Panel	11.6 Protection Relay Requirement for Transformer CRP (66kV/33kV) **11.6.1 Relay 1: M1PTP** /BSES-TS-86-CRP-R2	Two or Three winding low impedance biased differential protection / high impedance differential protection	We are offering 2-winding transformer relay.	okay, noted
40	Technical Specification	CRP	66KV Control & Relay Panel	11.6 Protection Relay Requirement for Transformer CRP (66kV/33kV) **11.6.2 Relay 2: M2PTP** /BSES-TS-86-CRP-R2	Voltage Protection: OV, Sync, VT Fail, etc. Frequency Protection: OF, UF, df/dt, etc. Reverse Blocking Function. Local Breaker Backup protection functions.	We understand the the mentioned functions shall also be acceptableas built-in part of Relay-1.	Mentioned functions shall be acceptableas built-in part of Relay-1 & Relay-2 both.
41	Technical Specification	CRP	66KV Control & Relay Panel	11.6 Protection Relay Requirement for Transformer CRP (66kV/33kV) **11.6.1 Relay 1: M1PTP** /BSES-TS-86-CRP-R2	StandBy EF (HV/LV) protection Sensitive EF (HV/LV) protections.	We understand that these functions if required are acceptable as derived functions also.	Need to follow as per BRPL TS
42	Technical Specification	CRP	66KV Control & Relay Panel	11.7 Protection Relay Requirement for Bus Coupler CRP (66kV/33kV) **11.7.1 Relay 1: M1BCP** /BSES-TS-86-CRP-R2	Protection functions as per site requirements.(shall be decided during detailed engineering) VT fuse fail monitoring Bus-2 VT ckt Voltage Protection: OV	We understand that the mentioned features can be achieved through Relay-2.So, any dedicated seperate relay(Relay-1) for the same is not required.	Dedicated seperate relay(Relay-1) for the same is required.

43	Technical Specification	CRP	66KV Control & Relay Panel	14.0 MANAGED ETHERNET SWITCH **14.1.2 FO Port (Downlink)** /BSES-TS-86-CRP-R2	Minimum 24 nos i. FO:20 nos LC,1310nm, multimode, 100 Mbit/s. ii. RJ45:4nos(CAT VI usable) Ethernet port copper, 1310nm,100 Mbits/s.	As per Ethernet port configuration, we understand that all numercial relays / IED are required with rear port FO only. Kindly clarify.	At the time of DDE
44	Technical Specification	CRP	66KV Control & Relay Panel	11.0 NUMERICAL RELAYS 11.1.2 Technology and Functionality BSES-TS-86-CRP-R2	Numerical, Artificial Intelligence, Microprocessor based with latest version, provision for multifunction protection, control, metering and monitoring, etc	Artificial Intelligence technology for Numerical Relays not offered.	At the time of DDE
45	Technical Specification	CRP	66KV Control & Relay Panel	11.0 NUMERICAL RELAYS 11.1.21 Human machine Interface (HMI) BSES-TS-86-CRP-R2	An alphanumeric key pad and graphical LCD display with backlight indicating measurement values and operating messages. It should be possible to access and change all setting and parameters without the use of PC.	Any graphical display feature is applicable for BCPU only. Further, alphanumeric key should be a optional feature as the same is not required in BCPUs or Numerical relays.	okay & same shall be review at the time of DDE
46	Technical Specification	CRP	66KV Control & Relay Panel	3.0 ANNEXURE- C – SPARES REQUIREMENT/ BSES-TS-86-CRP-R2	CRP SPARES	We understand that, we have to supply spares according to the BOQ only. Kindly clarify.	Spares mentioned in CRP specification shall be in scope of the bidder & shall be supply along with equipment.
47	Technical Specification	CRP	66KV Control & Relay Panel	16.0 INSTRUMENTS 16.12 Energy meter provision	Energy meter is not in supplier's scope. Only space and CT/VT wiring is to be provided in all panels except bus coupler and bus VT. Space shall be 350 mm (H) x200 mm (W) for flush mounting meter with holes for meter connection, wiring which	We understand thet Enery Meter shall be supplied by BRPL and only provision in CRP panel to be provided.	Energy Meter shall be supplied by bidder and it is separate line item in BOQ.
48	Technical Specification	CRP	66KV Control & Relay Panel	4.0 PANEL CONSTRUCTION **4.11 Ventilating louvers** /BSES-TS-86-CRP-R2	Ventilating louvers (Top/bottom) required & shall have screens and filters. The screens shall be made of either brass or GI wires mesh.	Our offered panel do not need Ventilating louvers. So, it must be optional for all bidders. Kindly accept.	Need to follow as per BRPL TS
49	Technical Specification	CRP	66KV Control & Relay Panel	6.0 TERMINAL BLOCKS 6.7 Spare terminals/ BSES-TS-86-CRP-R2	20% in each TB row. The spare terminals shall be provided with lugs mounted on it.	We shall offer total spares 20% TBs as spares and the calculation shall be 20% of used TBs in a particular panel.	Need to follow as per BRPL TS
50	Technical Specification	CRP	66KV Control & Relay Panel	11.4.5 Warranty & Guarantee/ BSES-TS-86-CRP-R2	Warranty & Guarantee should cover 66 months for CRP panel & numerical relays from supply.	We shall offer warranty as 66 months from supply or 60 months from commissioning,whichever is earlier	Need to follow as per BRPL TS
51	Technical Specification	CRP	66KV Control & Relay Panel	11.2.10/Transducer Input Module I/ BSES-TS-86-CRP-R2	Transducer 4 – 20mA inputs shall be required for as per site requirements	This application is required for Transformer feeders only and can be offered as per site	At the time of DDE

52	Technical Specification	CRP	66KV Control & Relay Panel	11.2.11 RTD inputs / BSES-TS-86-CRP-R2	Resistance Temperature detection inputs shall be required as per site requirements.	This application is required for Transformer feeders only and can be offered as per site	At the time of DDE
53	Technical Specification	CRP	66KV Control & Relay Panel	10.2.12 PT100 /BSES-TS-86-CRP-R1	PT100 inputs shall be required as per site requirements.	This application is required for Transformer feeders only and can be offered as per site	At the time of DDE
54	Technical Specification	CRP	66KV Control & Relay Panel	Remote End LDR Confi+Standalone Commisiong Support		We understand that any Retrofitting work & accessories not required.	Complete commissioning of LDR shall be in the bidder scope.
55	Technical Specification	CRP	66KV Control & Relay Panel	11.3.6 Time synchronization/BSES-TS-86-CRP-R2	All relays shall be capable of being synchronized with the system clock through SCADA, PC/Laptop	PTP shall be applicable for Process Bus Projects only,here it shall not be applicable.	Need to follow as per BRPL TS
56	Technical Specification	SCADA	66KV RTU	8 Training /Technical spec for SCADA S/s Automation System_R2	Training at lab/factory	One Time training For 5 persons for 2-3 days shall be offered either at Siemens/BRPL office.	Need to follow as per BRPL TS
57	Technical Specification	SCADA	66KV RTU	8 Training /Technical spec for SCADA S/s Automation System_R2	Training at lab/factory	Training Expenses (Air & Local Travel, boarding and Lodging shall be taken care by BRPL	Need to follow as per BRPL TS
58	Technical Specification	SCADA	66KV RTU	ANNEXURE- C – SPARES REQUIREMENT / Technical spec for SCADA S/s Automation System_R2	SCADA SPARES	We understand that mentioned spares are not applicable for this tender.	Spares mentioned in RTU specification shall be in scope of the bidder & shall be supply along with equipment.
59	Technical Specification	SCADA	66KV RTU	10.12 Annual Maintenance Contract / Technical spec for SCADA S/s Automation System_R2	AMC period of 3 years	We understand that any type of AMC is not applicable for this tender. Kindly clarify.	If offered RTU and SAS system are first of its kind in BRPL ,then AMC is mandatory
60	Technical Specification	SCADA	66KV RTU	5.0 RTU SOFTWARE REQUIREMENTS Technical spec for SCADA S/s Automation System_R2	PLC License	Any PLC license is not applicable for Siemens solution and shall not be offered.	At the time of DDE
61	Technical Specification	SCADA	66KV RTU	General	Control Center Integration	Our scope shall be limited upto station end only.Any integration activity with control center shall be	Integration activity with control center shall be taken care by bidder
62	Technical Specification	SCADA	66KV RTU	4.25 Panel Size & Hardware capacity space for future use / Technical spec for SCADA S/s Automation System_R2	The RTU system shall have the capacity of accommodating additional 50% of the basic I/O counts by addition of hardware such as modules, racks, panels, Terminal blocks of basic I/O counts.	We shall try to optimize the sapce avalibility during engineering stage,however 50% unused space avaialibility cannot be guaraneteed	At the time of DDE
63	Technical Specification	SCADA	66KV RTU	4.29 Ethernet Switch Panel/ Technical spec for SCADA S/s Automation System_R2	Ethernet Switch Panel	1.We understand that for 66kV side, Ethernet Swithces shall be mounted in CRPs/RTU Panel 2. For 11kv side, the same can be mounted at	For 11kv side, the Ethernet switches shall be mounted inside Ethernet Switch Panel.
64	Technical Specification	SCADA	66KV RTU	General	RTU configuration	Please confirm the number of DI/DO/AI points required in each	At the time of DDE

65	Technical Specification	SCADA	66KV RTU	Annexure E SCADA ADAPTATION AND INTEGRATION SERVICES/ Technical spec for SCADA S/s Automation System_R2	SCADA Adpatation	Please provide the BOQ of SCADA adaptation material and services required for this tender.	Shall be in bidder scope after layout approval
	66kV GIS						
66	Technical Specification	GIS	66kV GIS	4.7	Relative Humidity 100%	As per-IEC standard, Please confirm	shall be as per specification
67	Technical Specification	GIS	66kV GIS	5.3, 5.5	g. The bus bars shall be further sub-divided into compartments including the associated bus bar disconnector. h. Sectionalization shall ensure that circuit breaker enclosure will not include any other equipment in its gas compartment. The CB gas zone shall be independent from all other gas compartments and shall meet the requirement of relevant IEC	Compartmentalization shall be as per OEM standard design. BusBar Disconnector shall be part of Bus Bar Compartment, CT primary shall be part of CB compartment.	Shall be as per specification
68	Technical Specification	GIS	66kV GIS	5.4	quantity and operating pressure for all gas filled compartments or equipment. Degree of	HV compartment & IP65 protection are as per CENLEC Standards	Shall be as per specification
69	Technical Specification	GIS	66kV GIS	5.6	All end cable modules shall be suitable for connecting single core, XLPE specified cable. Necessary provision for	Cable box suitable for connecting required size and runs of cable are provided as per SLD. Please confirm	Shall be as per tender SLD
70	Technical Specification	GIS	66kV GIS	5.8.1	The orientation of pressure relief vents and gas exhaust ducts as necessary shall be coordinated during detailed engineering.	Orientation is directed upwards and its position cannot be changed, due to casting design	will be coordinated during detailed engineering
71	Technical Specification	GIS	66kV GIS	7.1.3 . 7.1.16	Breaker operation Three separate identical single pole units operated through a common shaft 10000 maintenance free operations at rated capacity	Three poles are enclosed in a single enclosure and are rated for 10,000 mechanical operations and 5,000 operations at rated capacity	Shall be as per specification
72	Technical Specification	GIS	66kV GIS	8.5	Fed by two DC incoming sources in Bus coupler panel with auto changeover facility	DC supply for bus coupler panel is not considered. Kindly confirm the requirment.	Shall be as per specification
73	Technical Specification	GIS	66kV GIS	9.5	An earth busbar, sized for the earth fault rating of the electrical system and switchgear, shall be	Earth Bus bar is not applicable in OEM design. As per OEM design only earth terminals will be	shall be as per specification
74	Technical Specification	GIS	66kV GIS	12.1	The GIS Window type with solid insulation of class of E or better.	Shall be toroidal core type	At the time of DDE
75	Technical Specification	GIS	66kV GIS	14.1.2	One dummy plug to be provided for each bay	Dummy plugs are not considered. Kindly confirm the requirment.	Shall be as per specification
76	Technical Specification	GIS	66kV GIS	21	In Breaker & HV cable compartment, mounted on an insulator. Heater - Space Heaters	Heaters are provided only in LCC and Mechanism Boxes	Query is not clear

77	Technical Specification	GIS	66kV GIS	25.2	Validity of Type test	Type Test Validity as per CEA guideline, no type test repetition is included in our offer. Please confirm	shall be as per specification
78	Technical Specification	GIS	66kV GIS	25.4	In addition to these tests, following tests have to be carried out as acceptance tests - Temperature Raise TEST One panel per Purchase order (PO with minimum 10 panels) without any commercial implication to BSES. Inhouse testing is acceptable.	Excluded from the present scope of works, as the qty of bays are only less than 10. It will be chargeable basis if it is required. Please confirm	shall be as per specification
79	Technical Specification	GIS	66kV GIS	25.11	The following type tests should be submitted for the GIS / CB / other equipment's as applicable. Tests shall be conducted on one GIS bay of Each type.	Type tests are done once for a design. As there is no design changes, no repetition of type test is foreseen. Also, kindly note that Type tests are not performed on complete single pole or three pole functional unit of a switchgear bay. As per IEC, type tests are done on assemblies or sub-assemblies or on equipment as defined in their respective IEC standards like for CB – IEC 62271-100 / DS-IEC-62271-102, etc. separately or grouped with other equipment as defined. Relevant type test reports shall be submitted for the GIS for review. We have not envisaged any type test repetition in this contract execution.	shall be as per specification
80	Technical Specification	GIS	66kV GIS	34.1.15	34.1.14 Enclosure degree of protection IP – 65 for gas filled compartments IP – 4X for Cable and LV compartment	Enclosures shall be as per CENLEC Standards	shall be as per specification
80	Technical Specification	GIS	66kV GIS	34.1.15.1	34.1.15 Bus bar – Main Rating as per SLD, Short time rating as per clause 1.10.34.1.19 Hardware Stainless steel. 34.1.20 Earth bus Aluminum 34.1.15.1 Material Copper	Bus bar shall be aluminum alloy	Ok noted. The valid type test report shall be submitted by the bidder
81	Technical Specification	GIS	66kV GIS	34.1.15.1	34.2.18 Time for Closing Operation 4 cycles	Closing time shall be 100ms for breaker	shall be as per specification
82	Technical Specification	GIS	66kV GIS	32, 33	ACCESSORIES, Spares	Kindly confirm the requirement of spares and Accessories which to be considered in price bid.	shall be as per specification
	11kV Switchgear						

83	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1	Annexure A: Scope of Work	1. Design,Manufacturing,Testing,Packing Forwarding of 11kV, 2000A, 25kA for 3 sec, IAC 1 sec with Cu Busbars. 2. Offered panels are suitable for mounting directly on leveled floor, hence, any base frames are not considered in our scope. 3. Programming software and communication cord shall not be in Siemens scope. 4. Please clarify the requirement, we have quoted for 11KV panels only. 5. We have considered only rack in rack out handle and breaker handling trolley if applicable.	1. 26.3kA for 3sec and IAC 1 sec accetable. 2. OK 3. OK 4.11KV panels 5. Breakers shall be trolley mounted or floor rolled out
84	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	2	Codes & Standard	Offered panels shall comply only to IEC standards as follows :- Panels - IEC 62271-200 VCB - IEC 62271-100 CT - IEC 61869-1/2 PT - IEC 61869-1/3 Other equipments shall comply to either IEC or national / internal standards. We shall not submit any standards' copies for review.	ok
85	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	3.10	Service condition: Seismic Zone	Panel shall be suitable for 0.5g acceleration of Seismic capacity.	4 Seismic zone
86	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.2	Panel construction: Enclosure degree of protection	Degree of Protection will be IP4x.	Shall be type tested
87	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.2	Panel construction: IP protection	We can confirm for IP4X only for low voltage compartment.	Shall be type tested
88	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.3.1 & 4.3.2	Sheet metal thickness & Materials: Panel construction:	Offered panels are type tested with following design: CRCA, Frame - 2.0 mm, High Voltage Door - as per type tested design, Low Voltage Door - 2.0 mm, Pressure Relief Flaps - 1.0 mm, Partitions between compartments - 2.0 mm, Shutters - 1.0 mm, Partitions between panels - 2.0 mm, Bottom Plate - 2.0 mm, Rear Side Covers - 2.0 mm, End Covers - 2.0 mm. Structure shall be of bolted type.	Shall be type tested

89	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.4	Operating height: Panel construction:	Operation height will me approx 1800 mm.During details engineering same be confirm.	Shall be as per recently supplied panels
90	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.6	Separate compartments: Panel construction:	Instrument transformer and cable termination can be part of the same	OK
91	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.7	Transparent Inspection Window: Panel construction:	Inspection window shall be provided for panels having cable termination only.	ok
92	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.8	BUS End Cable box: Panel construction:	We assume that these are the Adptor panel for joing bus through Cable.please confirm.	Bus end cable box not required
93	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.13	Pressure relief devices: Panel construction:	We shall provide type tested design for the rated IAC 25kA/1sec. Absorbers came on panel.	26.3kAfor 3sec and IAC 1 sec is BSES mandatory requirement
94	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.14	Bus support insulator: Panel construction:	As per our proven type tested design, bus support insulator shall be provided if required.	OK
95	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.15	Doors – Concealed hinged, door greater than 500mm shall have minimum three sets of hinges : Panel construction:	As per our proven type tested design, Hinges of the door are not concealed	OK
96	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.16	Cable termination height: Panel construction:	As per Siemens standard. approx. 600mm	From top of the base frame
97	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.17	Panel Base Frame	Noted. ISMC channel 75W 40H T-4.5-5	Shall be as per recently supplied panels
98	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.18	handle and Identificaton: Panel construction:	As per Siemens standard. However busbar compartment wont have any handle.	Shall be as per recently supplied panels
99	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	4.17	Base Frames : Panel construction:	Offered panels are suitable for mounting directly on leveled floor, hence we don't envisage any requirement of Baseframe.	Shall be as per recently supplied panels
100	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	5.1	Type: Circuit breaker	Breakers shall be cassette type.	Floor rolled as per above comments. No trolley required for rolling out the breaker
101	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	5.5	Contact: Circuit breaker	Breaker shall have contacts design as per Siemens standard	Shall be as per recently supplied panels
102	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	5.9	Breaker Position: Circuit breaker	Breaker shall have only two position inside the panel i.e service & test.	and intermediate
103	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	6.1.3	Racking mechanism safety interlock: Functional requirements	The same shall be as per Siemens standard.	ok
104	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	6.1.7	Opening of cable compartment cover: Functional requirements	Clause not clear hence we have considred Rear door limit switch interlock shall provide.	Shall be as per recently supplied panels

105	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	6.2.1	Exposure to live parts: Functional requirements	As per understanding requiremnet is In case the breaker panel door is required to be opened during a contingency, the personnel should not be exposed to any live part. Solution:	
106	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	6.5.4, 6.5.5	Emergency trip push button contact ,Master trip relay contact:Functional requirements	As per understanding requiremnet is If emergency push button is pressed or Lock out relay is operated then CB closing command should not go through.	
107	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	6.6, 6.7	Supply Bus: Functional requirements	Please note that control supply shall be distributed through control wire only.	ok
108	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	7	Surge suppressor	In place of surge suppressor, we shall provide surge arrestor.	ok class 3
109	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	9.3 &9.4	Mounting and neutral connection: Potential Transformer	Mounting and neutral connection shall be as per Siemens standard.Mounting of Withdraable PT shall be below VCB.	OK.
110	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	10	Feeder & Bus earthing: Equipment earthing	We shall provide Non fault making type earthing truck one no per switchboard for cable side and bus side earthing.Interlocks shall be as per Siemens standard.	shall be as per BOQ
111	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	11.3	Operation from front: Equipment earthing	Requirement is not clear hence cant confirm.	
112	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	11	Equipment earthing: Equipment earthing	Euipment earthing shall be done as per Siemens standard practice.	
113	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	13	Meters	We have not considered any KWH meters as per the SLD.please confirm the model & type. We have consider only Ammeter & voltmeter CL:1 as per specification.	KWH meter shall be in vendors scope of supply. Series shall be provided
114	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	13.1.4 & 13.1.5	AC & DC control supply fail: Indication	We have considered the same for main AC DC only and not for all panels.	Alarm and bell to be provided in B/C for the same
115	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	13.2	Annunciator	We have quoted for 11kV panels only hence not applicable and not quoted.	ok
116	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	14.0.0	Rating of switch & push button: Selector switches and push buttons	Rating of switches and push button shall be communicated during detailed engineering.	ok
117	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	14.1.2	Local /Scada selector switch:	we have consider L/R switch.please confirm	ok

117	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	14.1.3	Rotary ON/OFF switches Accept and reset push button of DC faill alarm: Selector switches and push buttons	On/off switch for heater and illumination lamp shall be provided as per Siemens standard. Accept and reset push button of DC fail alarm shall be provided for Main DC only. Please confirm	Shall be provided for DC-1and DC-2
118	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	15.0.0	Internal Wiring Ferrule type	Tubular printed Ferrule as supplied in earlier project .	Ok as per earlier supplies
119	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	16.0	Terminal blocks Spare Terminal Block in Capacitor Bank Panel	Terminal block shall be as per Siemens standard. Spare terminal and clearance between TBs shall be provided subject to space availability. TTB shall be as per	ok. 20% spare to be provided as per the space
120	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17	Relays and protection:	We have offred 7SR51 relay We have referred only SLD for protection details. Kindly confirm.	Relays shall be strictly Siprotec 5. Detailed makes are attached in Annexure -A
121	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.1.3 , 17.1.4, 17.1.6, 17.1.7	Architecture Programming and configuration Processing Indications Command Processing: Relays and protection	Requirement not clear hence canot confirm.	These are relay requirments. Siprotec series 5 shall be provided
122	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.1.5 17.1.9	Scada interface port PC interface port: Relays and protection	Please clarify the requirement , we have considered one rear LC FO port on IEC61850 and one USB port on front. Siemens scope shall end at the port of the relays. Looping, Ethernet switch or any hardware /software	As per SCADA spec. However dual FO port is required.
123	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.1.10	User Interface: Relays and protection	Not all setting and parameter can be changed.	As per SCADA spec.
124	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.1.14	Event & Fault Records: Relays and protection	Considred relay having even recording facility.	As per SCADA spec.
125	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		DI/DO of numerical relay: Relays and protection	Please provide the signal list , we have not received the same. Change in offered DI/DO shall have price implication.	As per SCADA spec.
126	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.1.18	Test Facility: Relays and protection	We have considred TTB for the same as per our understnading.	RTTB to beprovided
127	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.2.1	PT supervision: Relays and protection	Offered panels have MCBs for PT secondaries instead of fuses, hence	ok
128	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.6.1	Protection relay for capacitor panel	We have assumed there is one RVT only.PT supervision is not applicable	4 RVT's are to be provided
129	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.7	33KV protections: Relays	We have quoted for 11kV panels only hence not applicable.	ok

130	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.14.1	Scada interfacing: Relays	DI-11, DI-12, DI-13, : Requirement not clear hence cant confirm. Please clarify.	As per SCADA spec.
131	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.14.3	Looping of numerical relay: Relays	Looping of numerical relay upto ethernet switch is in our scope.	ok
132	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.15	Transformer monitoring cum AVR relay: Relays	We have not considered the same.	ok
133	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.16.1	Timer: Auxiliary relay general feature	Timer can be inbuilt part of main numerical relay.	ok
134	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.16.4	Operation indicators: Auxiliary relay general feature	Available only for numerical relay	ok
135	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.17.1	Antipumping relay, Auxiliary relay general feature	We have not considered antipumping relay as anti-pumping is an in-built feature of our VCB. TCS shall be part of	Main relay shall be TCS feature. Seperate TCS shall be provided.Lockout relay shall be electrical reset type
136	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.17.2, 1.7.17.3,1.7.17.4	PT selection relay, switchgear with two incomer and buscoupler, auxiliary relays, coupling relays, transducers etc: Auxiliary relay general feature	Please clarify more in details about these requirement, presently we have not considered the same.	2out of 3 logic shall be provided
137	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	17.18	Continuous overvoltage.: Auxiliary Supply	Suitability of component with overvoltage can be commented only during detailed engineering. we	DDE
138	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	20	Space heater location	Space heater mounting and its location shall be as per Siemens standard practice	OK
139	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	21	Switch & Sockets	We don't envisage Lamp in cable chamber. Socket shall be of Siemens standard.	Required
140	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	22	Name Plates & Marking	Name Plates, marking, identifcation mark, label shall be as per Siemens standard.	as per BSES spec
141	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	23	Surface Treatment & Painting	Painting shall be as per attached Siemens standard painting procedure.	as per BSES spec

142	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	25	Inspection ,testing & Quality assurance	Inspection and Testing shall be as per SIEMENS standard FAT and QAP. Only fully assembled switchboard shall be offered for inspection of routine tests. We shall submit test certificates of bought out items and no separate tests shall be conducted on these equipments at our works. Inspection shall be carried out as per our standard quality assurance plan. Any type test is not considered in our scope. However, we shall submit type test reports for type tests carried out on similar product. Any stage inspection is not envisaged. Type test report can be older than 5 years in case of no design change, please note that we dont envisage performing or repeatition of any type test.	QAP shall be approved by BSES
143	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	31	Drawings & Data Submission Matrix	Drawings and Documentation shall be as per SIEMENS standard Engineering Documentation. Relay setting data shall be provided by the BYPL.	To BRPL
144	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	26	Packing	Packing shall be done as per Siemens standard suitable for indoor storage only.	OK
145	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	28	Accessories & Tools	We don't envisage any accessories & tools except for breaker movement trolley if applicable and rack in rack out handle.	
146	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	55	Transformer monitoring cum AVR relay: Annexure -B	We have not considered the same in our scope.	OK
147	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	24	Wire Make: Approved Make of componanats	Wire Make will be Polycab / RR Kabel / Rolliflex. Request you to kindly approve the same.	Polycab/ Rolliflex
148	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	24	Test Terminal Block: Approved Make of componanats	We have consider TTB Make as DAV but in the approved make DAV is	TTB shall be as per approved make
149	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	24	Steel and other component not mentioned in this list: Approved Make of componanats	Make of steel and other component which make is not mentioned shall be as per Siemens approved vendor.	

150	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	25.1.1	Type test report validity period	Kindly note that some of the type test reports may be older than 5 years. However, those are still valid as there is no change in the design. IEC does not ask to repeat the type test after certain years unless there is substantial change in the design. In this view, we do not envisage any fresh type testing in our scope.	Shall be submitted
151	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	25.2.2	Temperature rise test	We have not considred any TRT test in our scope. If required please confirm.	Not required
152	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	26	PACKING	Offred panels packing is only for Indoor storage.we are not offered any outdoor pacling.	Shall be discussed during DDE
153	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	28	HANDLING AND STORAGE	Same shall be take care by EA Sol team.	Not clear
154	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1.5, 1.6	Voltage and Frequency Variation: Annexure C	Voltage and Frequency Variation will be as per IEC	as per BSES spec
155	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1.14.0	IP protection: Annexure C	We can confirm for IP4X only for low voltage compartment.	Shall be type tested
156	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1.15.1	Main Busbar Material: Annexure C	Main busbar material Considered is Electrolytic Copper in offered panel .	OK and contacts sliver plated
157	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1.15.0	Busbar sleeve: Annexure C	For 11KV NXAir panels: Offered panels are type tested as per IEC 62271-200 without the use of any busbar shrouds, sleeves, insulation and phase barriers (in cable chamber). Hence, these are not necessary.	Shall be as per Arjangarh panel
158	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1.15.3	Colour coding: Annexure C	RYB stickers shall be provided for phase identification.	Shall be as per recently supplied panels
159	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1.15.4	Temperature Rise: Annexure C	Temperature Rise will be as per IS / IEC	ok
160	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1.16.0	Auxiliary Busbar : Annexure C	Offered panel is considered with Auxialiry bus wire instead of Aux busbars.	ok
161	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1.17.0	Auxiliary DC supply: Annexure C	We have considered 220 VDC only.	ok
162	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	1.19.0	Hardware: Annexure C	Hardware used in panel shall be as per standard type tested design.	ok
163	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	3.2	CT Type: Annexure C	Offerd panels are type tested with Wound type CT & we have offered the same.	ok
164	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	3.6	CT / PT burdens and PS class CT details: Annexure C	Exact suitable CT / PT burdens and PS class CT details shall be informed during detailed engineering subject to manufacturers' confirmation.	ok

165	Technical Specification	11kV Switchgear	11kV Indoor Switchgear	5.0	FUSE: Annexure C	We understand the same is for PT , please note that rupturing capacity shall be as per manufacturers recommendation.	ok
166	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Spares: Annexure E	Item no 7, 8,11,12,13,14,15,16 needs more clarification.	as per BSES spec
167	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Meters: SLD	As per the note, we have not considered KWH meters in our scope.pleaase confirmthe Model. We will provide cutout & wiring provsion. Only anlogge Ammeter & voltmeter with CL:1 is consider.	Shall be in Siemens supply and flush mounted
168	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Antipumping relay: SLD	We have not considered antipumping relay as anti-pumping is an in-built feature of our VCB.	ok
169	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Burden of Instrument Transformer: SLD	Burden of instrument transformer shall be as per SLD connected subject to design feasibility.	ok
170	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		CT of Buscoupler: SLD	MBB is 2000A. As per SLD CT ration is 2400-1200A. Same is not	2000-1600 / 1-1 A required
171	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		CT of Incomer: SLD	MBB is 2000A. As per SLD CT ration is 2400-1200A. Same is not possible. We have considred 2000-1600 A	2000-1600 / 1-1 A required
172	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Cable cum busbar chamber: SLD	We are not clear about the same hence cant confirm.	
173	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		TCS: SLD	TCS can be inbuilt part of main numerical relay, separate relay shall not be provided in that case.	Seperate required
174	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Potential transformer: SLD	We have not considered any potential transformer or BPT in capacitor feeder hence equipment related to the same has also not been considered like voltmeter.Please confirm requirement for BUS PT.	shall be as per BOQ.
175	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		RVT input to capacitor feeder: SLD	We have considered single RVT input to the relay of capacitor feeder,	RVT shall be in each step
176	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Drawings: SLD	Please note that we have not considered any dummy panels for beam crossover or for reduced depth. If required the same shall be provided with suitable price implication.	As per BOQ

177	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Drawings: SLD	We have referred grid SLD only in drawings document. We have quoted panel with assumption that panels will be installed in single line .	Tender layour to be considered
178	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		67,67N: SLD	Please confirm in which feeder directional protection is required.	Relays shall be siprotec 5 and they have directional feature . Same to be provided in each feeder
179	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		52X: SLD	Breaker contact multiplication can be provided with aux contactor.	OK
180	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Rated current : IN panel Rating: General	In Offered panels ,IN Panel /Feeder rating are considered as the CT primary rating.	Shall be as per tender spec
181	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Ambient Temperature : General	Ambient Temperature Considered is 50 Deg C	as per sepec
182	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Power Cable and Control Cable Entry: General	From Bottom	Ok as per the layout
183	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Buscoupler with cable termination: BOQ	requirement is not clear , hence cant confirm	Cable entrires shall be discussed DDE
184	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Adaptor for Incomer Panel :BOQ	requirement is not clear , hence cant confirm	As per tender BOQ
185	Technical Specification	11kV Switchgear	11kV Indoor Switchgear		Type test report validity period	Kindly note that some of the type test reports may be older than 5 years. However, those are still valid as there is no change in the design. IEC does not ask to repeat the type test after certain years unless there is substantial change in the design. In this view, we do not envisage any fresh type testing in our scope.	Ok same shall be submitted
	Civil Molarbandh						
186	Technical specifications	Civil	Civil	5	WORKS BY OWNER: The following works shall be carried out by Owners: 1. Soil Investigation and Soil resistivity test 2. Topographical survey	1) Please share soil investigation report. 2) Please share contour map along with proposed finished ground level.	Issued as Corrigendum-2
187	Technical specifications	Civil	Civil	3.2.3	Contractor shall develop a building layout and other layouts so that the trees inside the plot shall be avoided from cutting. In extreme conditions, if the tree cutting is unavoidable, necessary liaison for permission shall be on part of Contractor from respective Govt. Agency. Requisite formalities shall be carried out by Owner. Fee shall be borne by the Owner.	We understand that tree cutting is not in present scope. Please confirm. In case if it is required, necessary permissions shall be obtained by BRPL only. Please confirm.	

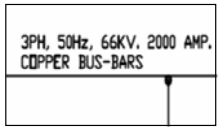
188	Technical specifications	Civil	Civil	9.15	Construction of Cable Trench 11Kv & 66Kv upto the plot boundary wall shall be in the scope of Vendor.	We understand that same is not envisaged under present scope. Please confirm. If it is under present scope, please share legnth and width of the cable trench to be considered.	
189	Technical specifications	Civil	Civil	15	Fencing of substation (Live part) area	We understand that boundary wall of proposed substation area is not under present scope. Please confirm.Only chain link fencing is under present scope.	
190	Technical specifications	Civil	Civil	17.15	Providing Fixing of Granite (Tan brown shade) to all Periphery of s/stn building 1000 mm above from Road level to give aesthetical look as per EIC shall be in scope of vendor.	We understand that granite cladding on periphery of building is required up to 1m height from road level. Please confirm.	
191	BoQ	Civil	Civil	BoQ	Fire Walls - 7nos.	Firewalls has been given as 7 no. requirement in boQ but in layout it is not clear. Please clarify.	
192	Layout	Civil	Civil	Layout	Layout for 66/11kV Molarband station	We understand that approach road and ramps required till the proposed substation entry shall be provided by BRPL. Please confirm.	
193	Layout	Civil	Civil	Layout	Layout for 66/11kV Molarband station	We understand that our scope of works is limited to substation area only. No works like fencing, land development, stone spreading etc. in the vacant space i.e. adjoining capacitor banks is under present scope. Please confirm.	
194	Site Visit	Civil	Civil	Site visit	Total area	We understand that no works for night shelter area and for DTL area like separation wall, sheeting etc. is under present scope. Please confirm.	
195	Site Visit	Civil	Civil	Site visit	Existing boundary wall	Please clarify if existing boundary wall will be dismantled and new one	
196	QR	Civil	QR			we request for bidder shuld have GIS substation experience inplace of	
	Civil Vamasundari						
196	Technical specifications	Civil	Civil	5	The Owner will carry out Geo Technical Investigation and Topographical Survey for the entire Sub-Station plot including switchyard. The copy of	Please share soil investigation report.	Issued as Corrigendum-2

197	Technical specifications	Civil	Civil	5	The layout and levels of all structures, etc shall be made by the Contractor at his own cost from the general grids of the plot and benchmarks finalized / approved by	Please share contour map along with proposed finished ground level.	
198	Technical specifications	Civil	Civil	3.2.3	Contractor shall develop a building layout and other layouts so that the trees inside the plot shall be avoided from cutting. In extreme conditions, if the tree cutting is unavoidable, necessary liaison for permission	We understand that tree cutting is not in present scope. Please confirm. In case if it is required, necessary permissions shall be obtained by BRPL only. Please confirm.	
199	Technical specifications	Civil	Civil	9.15	Construction of Cable Trench 11Kv & 66Kv upto the plot boundary wall shall be in the scope of Vendor.	We understand that same is not envisaged under present scope. Please confirm. If it is under present scope, please share legnth and width of the cable trench to be considered.	
200	Technical specifications	Civil	Civil	15	Fencing of substation (Live part) area	We understand that boundary wall of proposed substation area is not under present scope. Please confirm.Only chain link fencing is under present scope.	
201	Technical specifications	Civil	Civil	17.15	Providing Fixing of Granite (Tan brown shade) to all Periphery of s/stn building 1000 mm above from Road level to give aesthetical look as per EIC shall be in scope of vendor.	We understand that granite cladding on periphery of building is required up to 1m height from road level. Please confirm.	
202	Layout	Civil	Civil	Layout	Layout for 66/11kV Vamasundari station	We understand that approach road and ramps required till the proposed substation entry shall be provided by BRPL. Please confirm.	
203	Layout	Civil	Civil	Layout	Layout for 66/11kV Vamasundari station	We understand that boundary wall for proposed area will be constructed by owner and clear,hassle free land shall be handed over to us. Please confirm.	
204	Site visit	Civil	Civil	Site visit	Tree cutting	We understand that existing trees will be cut by owner. Please confirm.	
205	Site visit	Civil	Civil	Site visit	Land Development	It is envisaged that proposed plot area is on lower level as compared to nearby highway. Please share topographical map	

Pre Bid Queries

S.No	Reference Document	Reference Clause/DocNo.	Hyosung T&D's Queries	BSES Comments
1	NIT	Volume - II, Bid Price Schedule	There is a discrepancy for Molarbandh, where the SLD shows 3 Transformer bays, but the BOQ indicates 4 Transformer bays. Kindly Clarify	The proposed grid has ultimate planned capacity of 4x31.5 MVA PTRs. However in 3 stages: **Stage-1:** Grid construction for 3 nos. PTRs including all Electrical & Civil works excluding 3rd PTR & associated power cables. Trenches capacity to be built up for 3rd & 4th PTR also. **For 4th PTR GIS bay & CRP to be installed and allocation of designated space for other accessories like trenches, cable sealing, 11kV panels etc.** **For all calculations & provisions like AC/ DC requirement, battery, battery chargers, RTU & IT infrastructure all 4 PTRs shall be considered. Therefore other than PTR foundation, power & control cables all provisions have to be made for 4th PTR.** **Srage-2:** Installation of 3rd PTR alongwith associated power & control cables. **Srage-3:** Installation of 4th PTR alongwith associated power & control cables and it's 11kV switchgear.

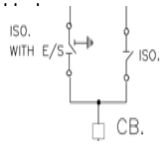
ANNEXURE - IV

SL No.	Bid Clause	Description	Our Query
1	NIT_NO_1310(Specification) Pg. no. 315 / 2402	2.7 Current transformers IS:2705, IEC 66044-1 2.8 Voltage transformer IS:3156, IEC 66044-2 13.1 Type: Each voltage transformer shall be metal enclosed, SF6 insulated in accordance with relevant IEC 60044.	Kindly note that IEC 60044 are the old IEC reference used for CT & VT , So please Allow Current Transformer as per IEC 61869-2 and Voltage Transformer as per IEC 61869-3.
2	NIT_NO_1310(Specification) Pg. no. 317 / 2402	Sectionalisation shall ensure that circuit breaker enclosure will not include any other equipment in its gas compartment.	Kindly Confirm if 72.5kV Type tested GIS module having CT and CB in one compartment and all other equipment having separate compartment is acceptable, this design is accepted by various state utilities and central utilities.
3	NIT_NO_1310(Specification) Pg. no. 325 / 2402	7.2.8 High speed earthing switch : Required for all bays	As per offered 72.5kV GIS, in three position switch there will be maintenance earth switch. High speed earth switch is a separate component, provided in each bay at line side & in M&E bay for busbar earthing. Kindly Confirm
4	NIT_NO_1310(Specification) Pg. no. 1228 / 2402	12.2 Location: Shall be located outside the gas compartment	Kindly note that, offered 72.5kV GIS provides Current Transformer inside the SF6 gas compartment(in compartment of CB). Please Confirm
5	NIT_NO_1310(Specification) Pg. no. 1235 / 2402	25.2 Type test report validity period Last five years from date of bid submission. Bidder with type test report more than 5 years old needs to reconduct the tests without any commercial implication to BSES	Kindly note that, as per CEA guidelines type test certificates validity is 15 Years. Please accept the same.
6	NIT_NO_1310(Specification) Pg. no. 1235 / 2402	25.11 Factory Acceptance Tests	Kindly note that, Factory Acceptance Test shall be performed as per manufacturing standard. Please Confirm.
7	NIT_NO_1310(Specification) Pg. no. 1243 / 2402	34.1.15.1 Material: Copper 	Kindly Note that unlike the MV Switchgear, the Conductor in HV switchgear is made up of Aluminum alloy. Please Confirm.
8	NIT_NO_1310(Specification) Pg. no. 1245 / 2402	34.2 CIRCUIT BREAKER 34.2.5.2 Make time Not more than 5 cycles 34.2.17 Time for Opening Operation: 3 cycles 34.2.18 Time for Closing Operation: 4 cycles	Please note that, offered 72.5kV GIS Circuit Breaker having: Closing Time : ≤90 ms Breaking Time : ≤60 ms Please Confirm .

ANNEXURE - IV			
SL No.	**Bid Clause**	**Description**	**Our Query**
9	BOQ Supply - BRPL Molarband + Vamasundari	BOQ: 66kV GIS Panel Transformer(As per Tender SLD)- Including Power Cable Termination - 4 Nos SLD: 3 Nos of Transformer bays Mentioned	Please note that there is a discrepency in the provided SLD and BOQ, As per BOQ 4 Nos of Transformer bays are mentioned while as per SLD 3 No of Transformer bays are mentioned. However as of now BOQ has been followed. Kindy confirm the same.

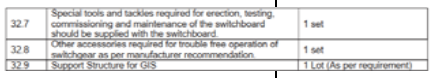
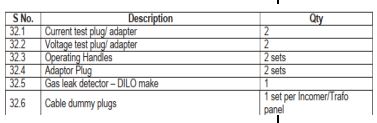
Project	66 kV GIS at BSES Rajdhani Power (Package - A)	
Date		27.12.24

S No.	Document	Query type	Description in the document	Deviation/ Queries	Queries to End customer (12/19/2025)	Comments for EPC (12/24/20250	BSES Reply
GIS BOQ							
1	Molarband	General	Scope for no. of bays		BOQ Document ask for 9 bays (4Line+4TR+1Buscoupler+2 Bus PT) whereas in tender SLD ask for 8 bays(4Line+3TR+1Buscoupler+2 Bus PT) . Request you to confirm the requirement.		The proposed grid has ultimate planned capacity of 4x31.5 MVA PTRs. However in 3 stages: **Stage-1:** Grid construction for 3 nos. PTRs including all Electrical & Civil works excluding 3rd PTR & associated power cables. Trenches capacity to be built up for 3rd & 4th PTR also. **For**
SLD- Grid (Vamasundari) & SLD - Molarbandh							
2	Tender SLD	SLD	Volage Transformer with Disconnector for Busbar measurement	Clarification	We propose VT with internal manual isolating link in BBM If the VT is motorized, then remote operation is possible. However, the isolation of VT is required only during O&M operation. This can be directly handled at site, which will help to reduce human error and any malfunction, and is better and reliable from safety perspective. Request your concurrence on this		Follow as per BRPL TS
3	Tender SLD	SLD	Volage Transformer with Disconnector in line bays	Clarification	We propose VT with internal manual isolating link in BBM & Line feeders instead of VT with disconnector inline with past supply to BSES Rajdhani Power Arjangarh SS. If the VT is motorized, then remote operation is possible. However, the isolation of VT is required only during O&M operation. This can be directly handled at site, which will help to reduce human error and any malfunction, and is better and reliable from safety perspective. Request your concurrence on this		Follow as per BRPL TS

4	Tender SLD	SLD	3 position switch for both bus bars	Clarification	We request to accept the common grounding switch for both the disconnector at busbar side inline with past supply to BSES Arjangarh project. As indicate 		Follow as per BRPL TS
5	Tender SLD	SLD	72.5KV, 2000A AT 50°C, 31.5 KA FOR 3SEC, CU BUS BAR,MAIN BUS–1	Deviation	The offered GIS Switchgear 8DN8, is type tested with aluminum busbar. As per spec clause "9.0 BUSBARS " Aluminium alloy busbar is accepted. Same is offered to BSES Rajdhani Power Arjangarh SS. Also globally to many state and central utilities. Request your acceptance.		Ok noted. The valid type test report shall be submitted by the bidder
6	SLD- Grid (Vamasundari) & SLD - Molarbandh	SLD	Requirement for future extension		Please confirm the requirement of future extension ,we understand future extension provision at one end of SS.Please confirm.		Yes, The provision has to be made for future extension of GIS. Civil structural design has to comply the same. Cable cut-outs to be planned accordingly.
Technical specifications							
7	5.3 Compartments	GIS	f. Switchgear should be completely partitioned from bay to bay. Also, each bay should have separate compartments for the following- Busbars Circuit breakers Disconnectors Incoming/Outgoing power cables	Clarification	We confirm to follow the compartmentalization inline with past supply to BSES Rajdhani Power Arjangarh SS.Kindly confirm.		Follow as per BRPL TS
8	5.3 Compartments	GIS	Sectionalisation shall ensure that circuit breaker enclosure will not include any other equipment in its gas compartment.	Clarification	Offered GIS Switchgear 8DN8, the current transformer being passive component shall be part of circuit breaker compartment. The design is type tested, offered globally & has been running successfully in operation all over the world. Same is supplied in past supplied BSES Rajdhani Power Arjangarh SS.		Follow as per BRPL TS

9	5.12 Interchange-ability	GIS	Replacement of circuit breaker module shall be without interfering busbar operation and without gas work.	Clarification	While doing maintenance on CB compartment, the CB compartment shall be at atmospheric pressure and adjacent compartment shall be at 0.5 bar. considering the safely of operating personal this is must.		Follow as per BRPL TS
10	Technical specifications	GIS	5.13 Door & Covers 5.14 Cover Plates 5.16 Panel Dimension	Clarification	The same shall be offered inline with the manufacturers standard practice & type tested design, ensuring the reliability of switchgear.		Follow as per BRPL TS
11	6.2 Place	GIS	The LCC shall be free standing type and shall be mounted in front of each GIS bay.	Clarification	We propose bay mounted LCC which shall be integrated on GIS bay with ease of access and it also reduces overall GIS footprint which in turn reduces the building size. Also in case of integrated LCC, all the wiring between LCC & GIS will be done inside the factory before dispatch, thus reducing the time for Installation of GIS. Requesting your confirmation on the same. TB in case of Integrated LCC shall be stud type for CT & VT, and pin type for other components.		Follow as per BRPL TS
12	6.15 Working level	GIS	**Working level:** The centre lines of switches, push buttons and indicating lamps shall not be less than 750mm and higher than 1600mm from panel base	Clarification	The height of switches, push button shall be up to 1800 mm. Request you to accept the same. We confirm to offer same design as supplied to BSES Rajdhani Power Arjangarh SS.		Follow as per BRPL TS
13	Technical specifications	GIS	High speed earthing switch - required for all bays	Clarification	We proposed Maintenance earth switch for Transformer bays as Transformer are located in the premises itself hence Maintenance earth switch shall also suffice the requirement. Please confirm		Follow as per BRPL TS
14	Technical specifications	GIS	**Marking:** All busbars and cable connections shall be marked to indicate the phase colouring, which shall be red, yellow and blue unless otherwise specified or explicitly precluded by relevant national standards	Clarification	As all the 3 phases are encapsulated for offered design of 66 kV GIS. The required marking arrangement is not feasible. However, we can provided stickers which shall show the internal arrangement of the conductors on the GIS Enclosure. Please confirm		Follow as per BRPL TS
15	10.0 EARTHING	GIS	10.0 EARTHING			Earthing proposal shall be shared by us during detail engineering. Supply of any earthing material is excluded from scope.	Follow as per BRPL TS

16	Technical specifications	GIS	**Voltage Transformer** - Each voltage transformer shall be metal enclosed, SF6 insulated in accordance with relevant IEC 60044.	Clarification	Each VT shall be in line with latest IEC 61869		Follow as per BRPL TS
17	Technical specifications	GIS	**Disconnection operation:** Motorised Disconnecting switch with provision for Manual operation.	Clarification	We propose VT with internal manual isolating link in BBM & Line feeders instead of VT with disconnector inline with past supply to BSES Rajdhani Power Arjangarh SS. If the VT is motorized, then remote operation is possible. However, the isolation of VT is required only during O&M operation. This can be directly handled at site, which will help to reduce human error and any malfunction, and is better and reliable from safety perspective. Request your concurrence on this		Follow as per BRPL TS
18	15.0 METERS 16.0 MULTIFUNCTION METER	GIS	14.0 CABLE TERMINATION 15.0 METERS 16.0 MULTIFUNCTION METER	Clarification	Same shall be offered inline with the manufacturers standard practice considering the reliability & safety prospective.		Follow as per BRPL TS
19	Technical specifications	GIS	All equipment mounted on front as well as inside the panels shall be provided with individual name plates with equipment designation/description engraved.	Clarification	We shall provide name plates for Complete GIS bay & separate name plates for CT, VT & Surge Arrestor.		Follow as per BRPL TS
20	25.1	GIS	Last five years from date of bid submission. Bidder with type test report more than 5 years old needs to re-conduct the tests without any commercial implication to BSES	Clarification	Type tests validity shall be 15 years as per the CEA guidelines & we shall follow the same. Please Please note that repetition of type test is not invisaged.Summary shall be shared for your review.		Type test report should not be older than 10 years subject to there is no design change in the product. CEA guidelines can be followed in the subject matter.
21	25.6	GIS	Temperature rise test One panel per Purchase order (PO with minimum 10 panels) without any commercial implication to BSES. In-house testing is acceptable.		Please clarify the requirement		Follow as per BRPL TS
22	Technical specifications	GIS	Factory Acceptance Tests	Clarification	FAT shall be in line with the approved MQP.		Follow as per BRPL TS

23	25.12 Site Tests	GIS	The moisture test (dew point measuring) shall be made on > 10% of the SF6 gas compartments 3-4 weeks after gas filling. The moisture level shall then be within the specified level.			Same shall be in EPC Scope of supply.	Follow as per BRPL TS
24	32.0 ACCESSORIES	GIS	 32.7 Special tools and tackles required for erection, testing, commissioning and maintenance of the switchboard should be supplied with the switchboard. — 1 set 32.8 Other accessories required for trouble free operation of switchgear as per manufacturer recommendation. — 1 set 32.9 Support Structure for GIS — 1 Lot (As per requirement)			Support structure required for GIS shall be in GIS OEM Scope. All the tools specified shall be quoted by EPC.	Follow as per BRPL TS
25	Tender SLD	GIS	Cu Bus bar  S No. / Description / Qty 32.1 Current test plug/ adapter — 2 32.2 Voltage test plug/ adapter — 2 32.3 Operating Handles — 2 sets 32.4 Adaptor Plug — 2 sets 32.5 Gas leak detector – DILO make — 1 32.6 Cable dummy plugs — 1 set per Incomer/Trafo panel	Deviation	We shall offer Aluminum Busbar design only for our offered 145 kV Switchgear. Same design is offered in past to BSES Rajdhani Power Arjangarh. Required Type test shall be submitted for review.		Ok noted. The valid type test report shall be submitted by the bidder
26	33.0 SPARES	GIS	33.0 SPARES	Clarification	Please confirm whether this is part of tender or can be quoted as optional item,		Spares mentioned in individaul equipment specification shall be in scope of the bidder & shall be supply along with equipment.
27	33.0 SPARES	GIS	33.17 Capacitive voltage indicator		As the requirement is not specified in the specification & not envisaged for HV Switchgear's is excluded from scope.		Follow as per BRPL TS
28	33.0 SPARES	GIS	33.5 GIS End Termination Kit for 3 Phase cable 33.18 Mobile gas filling and evacuation along with Gas Filter device along with Gas Filter - DILO make 33.20 Precision pressure gauge 1 No 33.21 Electronic moisture/SF6 gas humidity tester with dew point 33.23 Gas Leakage Detectors-Dilo Make	Clarification		Supply of special tools & tackles shall be in EPC Scope.	Follow as per BRPL TS

29	34.1.15.1	GIS	Material Copper	Deviation	Offered GIS switchgear 8DN8,The conductors of GIS (Busbar & other conductors) shall be made of Aluminum). Same design is offered in past to BSES Rajdhani Power Arjangarh.		Ok noted. The valid type test report shall be submitted by the bidder
TS- Packing and Transportation - Molarbandh & TS-Packing and Transportation - Vamasundari							
30		General/GIS	The bidder shall further be responsible, for making all necessary arrangements for loading, unloading and other handling right from his works; and from Indian port for equipment under the Off-shore Supply till the 'site' and also till the equipment is erected, tested and commissioned.	Clarification		Our scope shall be limited to supply of GIS, Freight, Loading the GIS on transport unit.Kindly check scope documents submitted with technical offer for further clarity. Unloading of GIS at site, storage at site shall be in EPC scope of supply.	Follow as per BRPL TS
Training and Inspection							
31		General/GIS	Training at factory & Site	Clarification	3 Days Site training at the time of commissioning of GIS shall be provided. Factory training if required, shall be quoted as optional. All the charges for travelling, lodging, boarding of trainees shall be in EPC Scope of supply.		Clarification being already given in corrigendum for GIS Inspection. For scope BRPL TS to be followed.
General Design Criteria							
32	2.1 Major Equipments :		Gas filling device with filter and leakage detector for above GIS Panel (DILO Make)- 1 Set			Same shall be in EPC Scope of supply.	Follow as per BRPL TS
33	2.6 Tools and Spares		Recommended Spares		The spare list is already specified in tender which will serve the purpose. Hence, any additional spares are not envisaged.		Spares mentioned in individaul equipment specification shall be in scope of the bidder & shall be supply along with equipment.
34	7		7.0 COORDINATION WITH STATUTORY BODIES & OUTSIDE AGENCIES			Required support shall be provided by OEM.Further,approvals from The customer & co-ordination with 3rd part shall be in EPC Scope	Follow as per BRPL TS

35	10.7 Gas Insulated Switchgear		One set Gas filling device along with filter, Gas leakage detector shall be integral part of GIS.		The gas leakage can be detected with the help of external gas leakage detection device. There is not any integral facility available to detect the gas leakage.	Supply of special tools & tackles shall be in EPC Scope.	Follow as per BRPL TS
O&M Scope							
36			O&M Scope			The scope for O& M Specified in this document is not quoted & excluded from GIS OEM Scope.	Follow as per BRPL TS

ANNEXURE - II

SL No.	Bid Clause	Description	Our Query	BRPL reply
1	Technical Specification for 66 KV 3C × 300 sq mm cable Specification no - BSES-TS-39-3C66-R0	General Specification - 3.0 cable design features - clause 3.14	Technical specification of clause number 3.14 has been deleted optical fiber cable (as one of the filler) whereas from BOQ 3Core 300 sq.mm 66 kV cable shall be OFC embedded. Please clarify. If 3Core 300 sq.mm 66 kV cables are OFC embedded, please share technical data sheet/requirement of OFC cable.	yes OFC embedded cable to be offered
2		General Specification - 3.0 cable design features - clause 3.11	Technical specification of clause number 3.11 has mentioned that Annealed copper tape of minimum thickness 0.1 mm, please note that as per IS 7098 Part 3 of clause 14.3.2 specify that "The nominal thickness of copper tape shall be not less than 0.1 mm. The minimum thickness shall not fall below the nominal value by more than 10%". So please confirm can we consider copper tape thickness requirement as per IS 7098 Part 3.	no deviation is allowed
3		Annexure – C: Guaranteed Technical Particulars - Sl no 26(b)	Data sheet of S. No. 26 (b) specifies PE ST-7 material as fillers whereas technical specification of clause 3.15 clearly mentioned that 3-Core cables shall be of PP Fillers. So please confirm can we consider PP fillers material in offered cable	yes , PP filler along with water blocking yarn to make it water tight required in offered cable
4		Annexure – C: Guaranteed Technical Particulars - Sl no 33	Data sheet of S. No. 33 specifies galvanized round steel wire armour diameter nominal 4.0 mm whereas technical specification of clause no. 3.18 specified that "galvanized round steel wire minimum 4.0 mm diameter complying the requirements of IS 3975:1999 with latest", accordingly to IS 7098 Part 3 standard of table 8 dimension of armour wire should be nominal and complying the requirement of IS 3975:1999. So please confirm can we consider armour diameter of offered cable as per IS 7098 Part 3 and complying all requirements of IS 3975:1999 latest.	No deviation is allowed, fault level as per technical specification
5		General Specification - 3.0 cable design features - clause 3.23 Embossing	1. Is name of buyer e.g., BSES will be provided on cable outer sheath by embossing or BRPL to be mentioned. 2. Since drum number will be different and it will change at every drum, so it is very difficult to provide these details by embossing, so requesting you please confirm Batch no / Lot no. and Drum number to be provided on outer sheath by printing inline with previous project supplied cable.	1. BRPL 2. Embossing is not required. Laser printing of drum number needs to be done.
6		Annexure-G - QUALITY ASSURANCE PLAN (QAP)- Routine tests- sl no. (g)	**Freely Strippable insulation screen (Strippability Test)** – Please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 3.7 specify insulation screen shall be bonded type. Hence strippability test on insulation screen shall not be applicable. Kindly confirm .	ok
7		Annexure-G - QUALITY ASSURANCE PLAN (QAP)- Acceptance tests - sl no. (p)	**Freely Strippable insulation screen** – Please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 3.7 specify insulation screen shall be bonded type. Hence strippability test on insulation screen shall not be applicable. Kindly Confirm	ok
8		Annexure-G - QUALITY ASSURANCE PLAN (QAP)- Acceptance tests - sl no. (q)	**Water Penetration test (WPT) on core (i.e. Longitudinal Water Blocking Test)** – Water Penetration Test shall be carried out per cable sample per PO (long duration test – 10days)	no deviation is allowed
9		Annexure-G - QUALITY ASSURANCE PLAN (QAP)- Acceptance tests - sl no. (x)	**Flammability test** – Technical specification of clause 3.20 specify HDPE outer sheath and please note that HDPE is highly flammable material easily caught fire. Hence flammability test will not be applicable for HDPE outer sheath.	ok
10	Technical Specification for 66 KV, single core cable sq mm cable Specification no - BSES-TS-40-1C66-R0	Clause 4.3.0 (Longitudinal water sealing of conductor)	This clause specified that conductor water tightness shall be achieved by water swelling fibers in the interstices of the conductor, Kindly confirm watertight conductor by providing tapes (Non conducting water swellable tape) in between stranding layers is acceptable or not.	no deviation is allowed
11		Clause 4.18.0 (Embossing)	1. Is name of buyer e.g., BSES will be provided on cable outer sheath by embossing or BRPL to be mentioned. 2. Since drum number will be different and it will change at every drum, so it is very difficult to provide these details by embossing, so requesting you please confirm Batch no / Lot no. and Drum number to be provided on outer sheath by printing inline with previous project supplied cable.	1. BRPL 2. Embossing is not required. Laser printing of drum number needs to be done.
12		Clause 5.1.0 (Type Test) :	Technical specification of this clause mentioned that Type Test report of same type, size and voltage rating to be submitted along with the bid and not more than five (5) years old, we have CPRI type test report of higher size in same voltage rating & type, please note that as per IEC 60840 of clause 12.2 (b) standard range of approval of type test report stated that "The conductor cross-section of offered cable is not larger than that of the type tested cable". So requesting you please allow and consider existing type test report against this requirement	no deviation is allowed
13		Annexure - F - QUALITY ASSURANCE PLAN (QAP) (B. PROCESS INSPECTION) - Sl no. -3	This clause specifies "DO NOT HEAT, FREELY STRIPPABLE" to be printing on outer semi- conducting layer, please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 4.7.0 specify insulation screen shall be firmly bonded to the insulation. Hence word "DO NOT HEAT, FREELY STRIPPABLE" will not be provided on insulation screen. Kindly confirm	ok
14		QUALITY ASSURANCE PLAN (QAP) - (FINAL INSPECTION - Routine tests- Sl no- (g)	**Freely Strippable insulation screen**- Please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 4.7.0 specify insulation screen shall be bonded type. Hence strippable test on insulation screen shall not be applicable. Kindly confirm.	ok

15		QUALITY ASSURANCE PLAN (QAP) - (FINAL INSPECTION - Acceptance tests- Sl no- (p)	**Freely Strippable insulation screen**- Please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 4.7.0 specify insulation screen shall be bonded type. Hence strippable test on insulation screen shall not be applicable. Kindly confirm.	ok
16		QUALITY ASSURANCE PLAN (QAP) - (FINAL INSPECTION - Acceptance tests- Sl no- (x)	**Flammability test**- Technical specification of clause 4.14.0 specify HDPE outer sheath and please note that HDPE is highly flammable material easily caught fire. Hence flammability test will not be applicable for HDPE outer	ok

S. No.	Havells Query	BRPL Reply
	BSES tender specification number BSES-TS-39-3C66-R0	
1	Technical specification of clause number 3.14 has been deleted optical fiber cable (as one of the filler) whereas from BOQ 3Core 300 sq.mm 66 kV cable shall be OFC embedded. Please clarify. If 3Core 300 sq.mm 66 kV cables are OFC embedded, please share technical data sheet/requirement of OFC cable.	yes OFC embedded required , technical data attached
2	Technical specification of clause number 3.11 has mentioned that Annealed copper tape of minimum thickness 0.1 mm, please note that as per IS 7098 Part 3 of clause 14.3.2 specify that "The **nominal thickness** of copper tape shall be not less than 0.1 mm. The minimum thickness shall not fall below the nominal value by more than 10%". So please confirm can we consider copper tape thickness requirement as per IS 7098 Part 3.	no deviation is allowed
3	Data sheet of S. No. 26 (b) specifies **PE ST-7** material as fillers whereas technical specification of clause 3.15 clearly mentioned that 3-Core cables shall be of **PP Fillers**. So please confirm can we consider PP fillers material in offered cable.	yes , PP filler along with water blocking yarn to make it water tight required in offered cable
4	Data sheet of S. No. 33 specifies galvanized round steel wire armour diameter nominal 4.0 mm whereas technical specification of clause no. 3.18 specified that "galvanized round steel wire minimum 4.0 mm diameter complying the requirements of IS 3975:1999 with latest", accordingly to IS 7098 Part 3 standard of table 8 dimension of armour wire should be nominal and complying the requirement of IS 3975:1999. So please confirm can we consider armour diameter of offered cable as per IS 7098 Part 3 and complying all requirements of IS 3975:1999 latest.	No deviation is allowed, fault level as per technical specification
5	**Clause 3.23 Embossing :** Is name of buyer e.g., BSES will be provided on cable outer sheath by embossing or BRPL to be mentioned.	BRPL
	Clause 3.23 Embossing : Since drum number will be different and it will change at every drum, so it is very difficult to provide these details by embossing, so requesting you please confirm Batch no / Lot no. and Drum number to be provided on outer sheath by printing inline with previous project supplied cable.	Embossing is not required. Laser printing of drum number needs to be done.
	QUALITY ASSURANCE PLAN (QAP) (Routine tests) –	
#####	**a. "s. no. g" Freely Strippable insulation screen (Strippability Test) –** Please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 3.7 specify insulation screen shall be bonded type. Hence strippability test on insulation screen shall not be applicable.	ok
	QUALITY ASSURANCE PLAN (QAP) (Acceptance tests) –	
#####	**a. "s. no. p" Freely Strippable insulation screen –** Please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 3.7 specify insulation screen shall be bonded type. Hence strippability test on insulation screen shall not be applicable.	ok
#####	**b. "s. no. q" Water Penetration test (WPT) on core (i.e. Longitudinal Water Blocking Test) –** Water Penetration Test shall be carried out per cable sample per PO *(long duration test – 10days)*	once per po shall be conducted

#####	**c. "s. no. x" Flammability test –** Technical specification of clause 3.20 specify HDPE outer sheath and please note that HDPE is highly flammable material easily caught fire. Hence flammability test will not be applicable for HDPE outer sheath.	ok
#####	**QUALITY ASSURANCE PLAN (QAP) (Type tests at vendor's works) –** Against Type tests at vendor's works – we will submit third party type test report of similar size / higher grade for review only.	no deviation is allowed
	BSES tender specification number BSES-TS-40-1C66-R0 **Clause 4.0 (DESIGN FEATURES)-**	
1	**Clause 4.3.0 (Longitudinal water sealing of conductor) :** This clause specified that conductor water tightness shall be achieved by water swelling fibers in the interstices of the conductor, we will offer watertight conductor by providing tapes (Non conducting water swellable tape) in between stranding layers.	ok
2	**Clause 4.18.0 (Embossing) :** This clause mentioned that " ISI marking" on cable outer sheath, please note that offered cables are generally confirming to IS 7098 Part 3, hence ISI marking on cable outer sheath shall not be provided.	ok
3	**Clause 4.18.0 (Embossing) :** Is name of buyer e.g., BSES will be provided on cable outer sheath by embossing or BRPL to be mentioned.	BRPL
4	**Clause 4.18.0 (Embossing) :** Since drum number will be different and it will change at every drum, so it is very difficult to provide these details by embossing, so requesting you please confirm Batch no / Lot no. and Drum number to be provided on outer sheath by printing inline with previous project supplied cable.	Embossing is not required. Laser printing of drum number needs to be done.
5	**Clause 5.1.0 (Type Test) :** Technical specification of this clause mentioned that Type Test report of same type, size and voltage rating to be submitted along with the bid and not more than five (5) years old, we have CPRI type test report of higher size in same voltage rating & type, please note that as per IEC 60840 of clause 12.2 (b) standard range of approval of type test report stated that "The conductor cross-section of offered cable is not larger than that of the type tested cable". So requesting you please allow and consider existing type test report against this requirement.	no deviation is allowed
	QUALITY ASSURANCE PLAN (QAP) (B. PROCESS INSPECTION) –	
6	**QAP (B. PROCESS INSPECTION- S. No. 3) :** This clause specifies "DO NOT HEAT, FREELY STRIPPABLE" to be printing on outer semi- conducting layer, please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 4.7.0 specify insulation screen shall be firmly bonded to the insulation. Hence word "DO NOT HEAT, FREELY STRIPPABLE" will not be provided on insulation screen.	ok
7	**Copper Tape, Laying up, Inner sheath & Armouring :** Copper Tape, Laying up, Inner sheath & Armouring in-process tests are not applicable for single core cable	ok
	QUALITY ASSURANCE PLAN (QAP) (FINAL INSPECTION, Routine tests) –	

8	QAP (C. FINAL INSPECTION, Routine tests of s. no. g - Freely Strippable insulation screen) : Please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 4.7.0 specify insulation screen shall be bonded type. Hence strippable test on insulation screen shall not be applicable.	ok
	QUALITY ASSURANCE PLAN (QAP) (FINAL INSPECTION, Acceptance tests) –	
9	QAP (C. FINAL INSPECTION, Acceptance tests of s. no. p - Freely Strippable insulation screen) : Please note that in extra high voltage cable the insulation screen shall be firmly bonded to the insulation and also technical specification of clause 4.7.0 specify insulation screen shall be bonded type. Hence strippable test on insulation screen shall not be applicable.	ok
10	QAP (C. FINAL INSPECTION, Acceptance tests of s. no. r & u) : Armour coverage, mass & uniformity & zinc coating on armour and resistivity of strip armour tests are not applicable for unarmoured single core cable.	ok
11	QAP (C. FINAL INSPECTION, Acceptance tests of s. no. x - Flammability test) : Technical specification of clause 4.14.0 specify HDPE outer sheath and please note that HDPE is highly flammable material easily caught fire. Hence flammability test will not be applicable for HDPE outer sheath.	ok
12	**QAP (C. FINAL INSPECTION, Type tests at vendor's works) :** Against Type tests at vendor's works – we will submit third party type test report of similar size / higher grade for review only.	no deviation is allowed

Annexure-I
Bidder's Queries

NIT No.: CMC/BR/25-26/FK/PR/KG/1310

Work Details: Survey, Design, Supply, Erection, Installation, Testing, Commissioning, Handing over of 02 Nos GIS Grid Substations along with associated Civil work (Package-A) and 09 Nos Cable Infeed/ Laying works (Package-B) on Turnkey Basis.

Name of Bidder: Sterlite Electric Limited

PREBID QUERIES- 2						
No.	**Section**	**Clause**	**Pgno**	**Specification Requirement**	**Clarification**	**Client Reply**
1	PRICE BID (SUPPLY & SERVICES) Package No B1	Scheme-3 Annexure-A & Annexure B	159-161	Scheme-3, Annexure-A (Protection), Annexure-B (SCADA), Annexure-B (Service), Annexure-C(JNU Estimate Yard Development)	We request you to kinldly confirm the make of Relay for which Annexure A & Annexure B items are to be supplied. We request you to kindly specify site detail and purpose for which the Annexure-C (JNU Estimate Yard Development) is to be carried out.	
2	GCC	45 Project Completion Timelines	71	Package A: 12 Months Package B: 5 Months	In liue of large scope for certain schemes we request you to kindly extend the completion period for Package B from 5 Months to 9 Months.	**As per Tender only**
3	GCC	37 Terms of Payment and Milestones	65	**(Package B)** **37.3.1 FOR SUPPLY OF EQUIPMENT AND MATERIALS:** i. 70% prorata of supply value item-wise shall be payable against R/A bills for supply of equipments and materials within 30 days against receipt & acceptance of material at site and submission of following documents duly certified by BRPL Project-incharge, complete in all respects: ii. 20% prorata on account of supply value of the actual executed value after installation/erection of material duly certified by BRPL Project-in-charge. iii. Balance 10% on account of supply value of the actual executed value shall be paid in 30 days after completion of successful acceptance testing, commissioning and handing over of complete systems duly certified by BRPL Engineer-in-Charge specified in the tender and on submission of performance Bank Guarantee of 10% amount, in our format valid up to a defect liability period from the date of handing over of the scheme including submission of Electrical Inspector Clearance Certificate, Compliance of final punch point, No Demand Certificate, Letter of Indemnity by the Contractor	We request you to kindly amend the payment terms as given below: **37.3.1 FOR SUPPLY OF EQUIPMENT AND MATERIALS:** i. **80%** prorata of supply value item-wise shall be payable against R/A bills for supply of equipments and materials within 30 days against receipt & acceptance of material at site and submission of following documents duly certified by BRPL Project-incharge, complete in all respects: ii. **10%** prorata on account of supply value of the actual executed value after installation/erection of material duly certified by BRPL Project-in-charge. iii. Balance **10%** on account of supply value of the actual executed value shall be paid in 30 days after completion of successful acceptance testing, commissioning and handing over of complete systems duly certified by BRPL Engineer-in-Charge specified in the tender and on submission of performance Bank Guarantee of 10% amount, in our format valid up to a defect liability period from the date of handing over of the scheme including submission of Electrical Inspector Clearance Certificate, Compliance of final punch point, No Demand Certificate, Letter of Indemnity by the Contractor	**As per Tender only**

Annexure-I

NIT No.: CMC/BR/25-26/FK/PR/KG/1310

Work Details: Survey, Design, Supply, Erection, Installation, Testing, Commissioning, Handing over of 02 Nos GIS Grid Substations along with associated Civil work (Package-A) and 09 Nos Cable Infeed/ Laying works (Package-B) on Turnkey Basis.

Name of Bidder: Sterlite Electric Limited

PREBID QUERIES- 1

No.	Section	Clause	Pgno	Specification Requirement	Clarification	Client Reply
1	PRICE BID (SUPPLY & SERVICES) Package No B1	Scheme-5, Supply , Sr.no 6	167	CBL; PWR; 630MM2; 1 CORE; 66KV; AL	We understand that mentioned cable is OFC embedded. Kindly confirm.	OFC embedded is not required for the this line item
2	PRICE BID (SUPPLY & SERVICES) Package No B1	Scheme-3 Annexure-A & Annexure-B	159-161		Apart from Supply & ETC, Annexure-A (Protection), Annexure-B (SCADA), Annexure-B (Service), Annexure-C(JNU Estimate Yard Development) BoQ are given. We understand same is not in scope of Package B and is not to be quoted. Kinldy confirm.	
3	GCC	45 Project Completion Timelines	71	Package A: 12 Months Package B: 5 Months	Since cable in Package B will be feeding Package A Grid SS, All Schemes in Package B can't be handed over in charging state. Based on above we understand that Scheme in Package B will be deemed to be taken over once all test are sucessfully done and all work of respective scope is completed irrespective of the end stations ready or not which is not in scope of Package B. Kindly confirm.	**As per Tender**
4	GCC	47 Liquidity Damages	73	47.1.2. If supply of items / equipment is delayed beyond the supply schedule as stipulated in LOI/PO, then the Supplier shall be liable to pay the Purchaser for delay a sum of 0.5% (half percent) of the total price for every week of delay or part thereof for undelivered units. **47.1.3. If the Contractor fails to successfully hand over the awarded Packages within the agreed contract completion schedule, the contractor shall pay to the Purchaser, Liquidated damages for the delayed period at the rate of 0.5% of the total contract price per each week of delay or Pro-rata thereof, by which the Completion is delayed.** 47.1.4. The maximum liquidated damages (LD) for delay shall not exceed 10% of the Contract Value.	Since Package B has different schemes we understand that LD will be applied Scheme Wise, delay in one scheme will not attract penalty on other shcheme price. Kindly confirm. We understand that contractor will not attract any LD due to delay caused by non readiness of end SS or works which are not in scope of contractor. Kindly confirm	**Yes, All orders will be awarded schemewise and LD will be applied schemewise only. Yes, No LD shall be applicable on delay caused by non readiness of end SS or works which are not in scope of contractor.**
5	GCC	37 Terms of Payment and Milestones	65	**(Package B)** **37.3.1 FOR SUPPLY OF EQUIPMENT AND MATERIALS:** iii. Balance 10% on account of supply value of the actual executed value shall be paid in 30 days after completion of successful acceptance testing, commissioning and handing over of complete systems duly certified by BRPL Engineer-in-Charge specified in the tender and on submission of performance Bank Guarantee of 10% amount, in our format valid up to a defect liability period from the date of handing over of the scheme including submission of Electrical Inspector Clearance Certificate, Compliance of final punch point, No Demand Certificate, Letter of Indemnity by the Contractor **37.3.2. FOR LAYING, ERECTION, INSTALLATION AND TESTING & COMMISSIONING:** ii. Balance 10% on account of total installation value of the actual executed value payable shall be paid in 30 days after completion of successful acceptance testing, commissioning and handing over of complete systems duly certified by BRPL Engineer-in-Charge specified in the tender and on submission of performance Bank Guarantee of 10% amount	We understand that payment of balance 10% retention which is linked with commissioning and handing over of complete system will be scheme-wise, on completion of subject scheme in given package the payment for retention will be released independent of other schemes. Kinldy Confirm. We understand that retention will be released in case delay is caused by non readiness of end SS or works which are not in scope of contractor. Kindly confirm	**Yes, Noted.**

Annexure-A

Survey, Design, Supply, Erection, Installation, Testing, Commissioning, Handing over of 02 Nos GIS Grid Substations along with associated Civil work (Package-A) and 09 Nos Cable Infeed/Laying works (Package-B) on Turnkey Basis against NIT No. NIT NO: CMC/BR/25-26/FK/PR/KG/1310			
Sr. No.	**Tender Clause**	**UCL Queries**	**BRPL Reply**
1	Clause no. 11.03 of ITB & ANNEXURE – 2.07 Summary of Commercial Terms & Conditions: Prices quoted by the Bidder shall be "Firm" and not subject to any price adjustment during the performance of the Contract. A Bid submitted with an adjustable price/Price Variation Clause will be treated as non-responsive and rejected	The tender specification calls for firm prices. However, considering the present market conditions and the high volatility in raw material prices—especially metals (Aluminium & Copper)—we request your kind consideration to allow submission of prices for 33kV & 66kV cables on a variable price basis linked to LME. We propose that price variation be allowed only on metal components (Copper and Aluminium) as per the following Price Variation formula: P = Po + [CuF{(Cu*ER)-(Cuo*ERo)} + Alf{(Al*ER)-(Alo*ERo)}] P = Price payable in Rs./Km, as adjusted in accordance with above Formula. Po = Quoted/Ordered Price. (in Rs/Km) CuF = Variation factor for Copper AlF = Variation Factor for Aluminium Cuo = Base LME Price of Copper in US$ per MT as declared . Alo = Base LME Price for Aluminium in US$ per MT as declared ERo = Base Exchange Rate for US$ as declared Cu = LME Price of Copper in US$ per MT prevailing as on the 1st working day from the date of release of LOI/PO. AL = LME Price of Aluminium in US$ per MT prevailing as on the 1st working day from the date of release of LOI/PO. ER = Exchange Rate for US$ prevailing on the date the order confirmation or purchase order (PO) is received The Copper and Aluminium variation factors shall be declared by the bidder at the time of submission of the offer. Please confirm your acceptance for the above proposal.	As per Tender
2	a) Type Tests requirment for 33kV, 3C x 400 Sqmm Cable: Cables must be of type tested quality. Type Test Reports shall be submitted for the type, size and voltage rating of cable offered in the bid. For participation in the tender Type Test report shall be submitted from CPRI/ERDA only and shall not be more than 5 years old from the date of tender. If the report is more than 5 years and but less than 10 years old than bidder to submit undertaking that there is no design changes from the Type test conducted.	We presume that the valid type test report of Offred cable conducted from CPRI/ERDA only is required to be submitted along with bid for the qualification of OEM. Please confirm our understanding Further, please note that type test validity for the cables are 10 years as per the CEA guideline. We understand that the Type test report (from CPRI/ERDA) of not more than ten (10) years old shall also be accepted. Please confirm	OK, Confirmed
3	Type Test Requirment of 66kV 3Cx 300Sqmm cable: The cable and the associated accessories like Joints and Terminations of same voltage, design and number of cores shall be of Type Tested from CPRI/ERDA as per IEC 60840:2004 /IS7098-III:1993 with latest amendments. Type test report (from CPRI/ ERDA only) of not more than five (5) year old shall be submitted for the same type, size and voltage rating of cable offered with the Bid.		OK, Confirmed
4	Type Test Requirment for 66kV 1Cx 1000Sqmm cable: The cable and the associated accessories like Joints and terminations of same voltage, design and number of cores shall be Type Tested from CPRI/ERDA as per IEC 60840/IS7098 (part-3) with latest amendments. Type test report (from CPRI/ERDA only) of not more than five (5) years old shall be submitted for the same type, size and voltage rating of the cable offered, along with the bid to qualify in the tender.		OK, Confirmed

Sr. No.	Tender Clause	UCL Queries	BRPL Reply
8	Sr. No. 7 Project Schedule (For Package B) of ANNEXURE – 2.07 Summary of Commercial Terms & Conditions	150 days from the date of LOI/LOA/PO or completion as per the BRPL schedule for Package-B1 & B2 is not feasible. Tender involves various works at various sites; therefore, we request you to please amend the completion schedule to a minimum 12 months inline with Package A Substation tender.	No deviation allowed
9	General	Structural Drawings are not available with tender documents. Please provide the same	
10	General	Please arrange to provide the detailed technical specification of SCADA as mentioned in Service BOQ for Scheme 3 of Package B1	
11	General	Please confirm that BRPL would obtain the Right-of-Way (RoW) permission and make payment for the same directly to the concerned authorities if any.	As per Tender
12	General	Please extend the due date by min. 2-3 weeks	Due date exteneded up to 07-12-2025
13		As per the BOQ, **66 kV 3C × 300 sq.mmArmoured** and **33 kV 3C × 400 sq.mmAluminium XLPE** cables are specified with embedded OFC. However, the OFC details are mentioned only in the technical specification on page no. 2402. It would be of great assistance to our design team if detailed OFC specifications could be explicitly provided in the tender document	For the both 66 kV 3C × 300 **sq.mmArmoured and 33 kV 3C × 400 sq.mmAluminium XLPE cables :- Yes, OFC embedded required.**
14		For the **66 kV 3C × 300 sq.mmArmoured cable**, the armour fault current specified by BSES is **26.3 kA for 3 seconds**. However, a **300 sq.mmaluminium conductor** is capable of carrying only **16.2 kA for 3 seconds**. In view of this apparent discrepancy, kindly confirm the correct requirement/data for the armour fault current.	**For the both 66 kV 3C × 300 sq.mmArmoured and 33 kV 3C × 400 sq.mmAluminium XLPE cables :- As per the BRPL specification, No deviation allowed.**