



Bharat Heavy Electricals Limited

(A Govt. of India Undertaking)

Transmission Business Group

Materials Management, 5th Floor, Plot No.25,

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CORRIGENDUM - 02 TO NIT NO-75967

Dated 16.08.2023

Subject: Corrigendum-02 to Tender enquiry for Pre-bid Tie up for Supply & Services of 400 kV & 220 KV GIS FOR POWERGRID_SS27T PROJECT.

Project : Powergrid_SS27T (Jewar)
Equipment / Item : SUPPLY & SERVICES OF 400KV & 220KV GIS
Enquiry No/Date : 61Q2400146 Dated 04-08-23
BHEL NIT NO : 75967
Original Tender due date : 16.08.2023

This Corrigendum is issued by BHEL TBG against above mentioned NIT/ enquiry for-

- a) Issuance of technical pre-bid clarifications (enclosed)
- b) Extension of due date upto **19-08-2023, 11:00 Hrs.**

All other terms and conditions for this tender enquiry shall remain unchanged.

Bidder to ensure submission of offer on or before due.

Note: Tender ID in CPP Portal is **2023_BHEL_27381_1.**

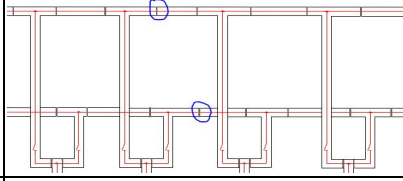
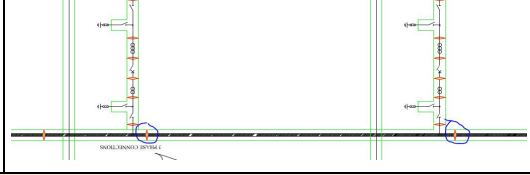
Thanking you

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Gaurav Agarwal
BHEL TBG, NOIDA

GIS Queries				
Project: 400/220 kV, 2x500 MVA GIS Substation JEWAR				
S.No	Tender Specification clause	Description	Query	BHEL Reply 16/08/2023
Technical specification for 400kV & 220kV GIS (GIS-REV 5A)				
1	2.3	The equipment offered shall be protected against all types of voltage surges and any equipment necessary to satisfy this requirement shall deemed to be included.	We understand that surge arrestors are required to cater the requirement and are of AIS type.	Requirement of SA if any please be derived from ANNEXURE- 13 Of GIS Rev5A
2	5.8.	The material and thickness of the enclosures shall be such as to withstand an internal flash over without burns through for a period of 300 ms at rated short time withstand current. The material shall be such that it has no effect of environment as well as from the by-products of SF6 breakdown under arcing condition. This shall be validated with Type Test.	The Value shall be in line with the requirement of IEC 62271-203. Request a concurrence on the same.	Bidder to please refer technical specification for compliance
3	5.9	Inspection windows (View Ports) shall be provided for Disconnect Switch and both type of earth switches i.e. Maintenance and fast operating.	Inspection windows shall be provided for Disconnect enclosures . Provision of Observation windows for Earth switches is not envisaged as such.	Please follow technical specification for compliance. The case of technical inability shall be reviewed during contract stage and the same shall be subject to customer approval.
4	5.21.	The GIS shall be designed, so as to take care of the VFT over voltages generated as a result of pre-strikes and re-strikes during isolator operation. Maximum VFT over voltages peak shall not be higher than rated lightning impulse withstand voltage (LIWV) of the equipment. Necessary measures shall be under taken by GIS manufacture to restrict maximum VFT over voltages lower than the LIWV. Manufacturer shall submit the study report of VFTO generated for GIS installation.	For an 220 kV GIS system, we do not envisage VFTO studies. Hence, the same shall be excluded from SE GT PR SW GIS Ltd. scope of supply.	Please follow technical specification for compliance.
5	5.25	The switchgear shall have provision for connection with ground mat risers through copper connections. This provision shall consist of grounding pads to be connected to the ground mat riser in the vicinity of the equipment.	Earthing details shall be provided during detailed engineering stage. However, supply of earthing materials shall be excluded from SE GT PR SW GIS Ltd. scope of supply.	Please follow technical specification for compliance.
6	5.27	In addition to above suitable portable scissor lift shall be provided for access of distant portion of GIS installation.	We do not envisage this requirement. Walkways if required and portable ladder shall be provided.	Please follow technical specification for compliance. Completeness of System as per specification including all supply involved are in bidders scope as per specification. For exclusions please refer Section-1 clause 16. EXCLUSION FROM BIDDER'S SCOPE.
7	5.31	ii) Any other alarm necessary to indicate deterioration of the gas insulating system.	Not Applicable for the offered GIS	Please follow technical specification for compliance.
8	5.39	Grounding	Earthing details shall be provided during detailed engineering stage. However, supply of earthing materials shall be excluded from SE GT PR SW GIS Ltd. scope of supply.	Please follow technical specification for compliance.
9	5.41. Gas Insulated Bus (GIB) layout :	The horizontal clearance between GIB and GIS building /any other building wall shall be preferably three (3) meters.	The space/area utilization for such a configuration is very high and request customer to accept the standard spacing's between circuits considering the fact that the Bus-ducts are passive and requires almost no maintenance. Request PGCIL to accept the same.	Please follow technical specification for compliance.
10	5.39.3	The enclosure of the GIS may be grounded at several points so that there shall be grounded cage around all the live parts. A minimum of two nos. of grounding connections should be provided for each of circuit breaker, cable terminals, surge arrestors, earth switches and at each end of the bus bars. The grounding continuity between each enclosure shall be effectively interconnected externally with Copper /Aluminum bonds of suitable size to bridge the flanges.	The GIS design is such, the proper bonding is ensured by direct metal to metal flange connections and 2 nos. earthing provisions given for grounding.	Please follow technical specification for compliance.
11	6.6.7	Provisions shall be made for attaching an operational analyzer to record travel, speed and making measurement of operating timings etc. after installation at site. The contractor shall supply three set of transducer for each substation covered under the scope.	The supply of transducers is excluded SE GT PR SW GIS Ltd. Scope of supply	Please follow technical specification for compliance.
12	6.6.8.	Circuit Breaker shall be supplied with auxiliary switch having additional 8 NO(normally open) and 8 NC (normally closed) contacts for future use over and above those required for switchgear interlocking and other control and protection function. These spare NO and NC contacts shall be wired upto the local control cubicle.	Auxiliary switches are of standard design/size suitably designed for the available space. Hence the required additional 8 NO (Normally open) and 8 NC (normally closed) contacts shall be provided to customer through contact multiplication relays at LCC.	Please follow technical specification for compliance.
13	6.7.2. Control	The breaker shall normally be operated by remote electrical control. Electrical tripping shall be performed by shunt trip coils. However, provisions shall be made for local electrical control. For this purpose a local/remote selector switch and close and trip control switch/push buttons shall be provided in the breaker control cabinet.	As per our standard practice the Local/Remote switches will be provided in the Local Control Cubicle (LCC).	Noted subject to customer approval during contract stage

GIS Queries				
Project: 400/220 kV, 2x500 MVA GIS Substation JEWAR				
14	7.2.5	For motor-operated disconnect switches, the control should be electrically and/or mechanically uncoupled from the drive shaft when the switch is operated manually to prevent coincident power operation of the switch and the drive mechanism(s).	Only electrical inter-locks possible between DS & ES. We do not envisage providing any mechanical interlocks. Request customer to kindly accept the same.	Please follow technical specification for compliance. The case of technical inability shall be reviewed during contract stage and the same shall be subject to customer approval.
15	7.2.10	Each disconnecter shall be supplied with auxiliary switch having additional 8 NO (Normally Open) and 8 NC (Normally Closed) contacts for future use over and above those required for switchgear interlocking and automation purposes. These spare NO and NC contacts shall be wired up to the local control cabinet.	Auxiliary switches are of standard design/size suitably designed for the available space. Hence the required additional 8 NO (Normally open) and 8 NC (normally closed) contacts shall be provided to customer through contact multiplication relays at LCC.	Please follow technical specification for compliance. The case of technical inability shall be reviewed during contract stage and the same shall be subject to customer approval.
16	7.2.13	The disconnectors and safety grounding switches shall have a mechanical and electrical inter-locks to prevent closing of the grounding switches when isolator switches are in the closed position and to prevent closing of the disconnectors when the grounding switch is in the closed position. Integrally mounted lock when provided shall be equipped with a unique key for such three phase group. Master key is not permitted.	The disconnectors and the safety grounding switches are separate modules in GIS design and shall have only electrical inter-locks between them. However the required padlocking facility shall be provided for the manual interlocking for additional protection.	Please follow technical specification for compliance. The case of technical inability shall be reviewed during contract stage and the same shall be subject to customer approval.
17	8.2	Each safety grounding switch shall be electrically interlocked with its associated disconnectors and circuit breaker such that it can only be closed if both the circuit breaker and disconnectors are in open position. Safety grounding switch shall also be mechanically key interlocked with its associated disconnectors.	The disconnectors and the safety grounding switches are separate modules in GIS design and shall have only electrical inter-locks between them. However the required padlocking facility shall be provided for the manual interlocking for additional protection.	Please follow technical specification for compliance. The case of technical inability shall be reviewed during contract stage and the same shall be subject to customer approval.
18	8.6	Each ground switch shall be fitted with auxiliary switches having 4 NO (Normally Open) and 4 NC (Normally Closed) contacts for use by others over and above those required for local interlocking and position indication purposes.	Auxiliary switches are of standard design/size suitably designed for the available space. Hence the required additional 4 NO (Normally open) and 4 NC (normally closed) contacts shall be provided to customer through contact multiplication relays at LCC.	Please follow technical specification for compliance. The case of technical inability shall be reviewed during contract stage and the same shall be subject to customer approval.
19	9.9	Each high speed ground switch shall be fitted with auxiliary switches having 4 NO (Normally Open) and 4 NC (Normally Closed) contacts for use by others, over and above these required for local interlocking and position indication.	Auxiliary switches are of standard design/size suitably designed for the available space. Hence the required additional 4 NO (Normally open) and 4 NC (normally closed) contacts shall be provided to customer through contact multiplication relays at LCC.	Please follow technical specification for compliance. The case of technical inability shall be reviewed during contract stage and the same shall be subject to customer approval.
20	11.2.	Insulation co-ordination and selection of surge arrester:	The same shall be excluded from SE GT PR SW GIS Ltd. scope of supply.	Please follow technical specification for compliance.
21	11.3.2	Surge arrester shall be disconnect-link type and be attached to the gas-insulated system in such a manner that they can be readily disconnected from the system while the system is being dielectrically tested.	Noted. However gas works shall be required to do the same. Also we do not foresee any requirement of GIS LA.	Noted
22	15.2.1	It shall comprise structural frames completely enclosed with specially selected smooth finished, cold rolled sheet steel of thickness not less than 3 mm for weight bearing members of the panels such as base frame, front sheet and door frames, and 2.0mm for sides, door, top and bottom portions.	As per the standard practice, for the weight bearing members a sheet thickness of 2.5 mm is more than sufficient and as a GIS manufacturer we recommended the same and for non weight bearing members the same is 2 mm thick. We request customer to kindly confirm the same.	Please follow technical specification for compliance.
23	22	All transport packages containing critical units viz Circuit breakers and Voltage transformers shall be provided with sufficient number of impact recorders (on returnable basis) during transportation to measure the magnitude and duration of the impact in all three directions.	VTs being an critical equipment only impact recorders shall be provided for VTs. We request customer to kindly accept the same.	Please follow technical specification for compliance.
24	23.9.	Cost of the raised platform for temporary storage is deemed to be included in overall cost. The raised platform needs to be made ready before arrival of GIS equipment at site. The contractor may use the available storage areas at site with permission of site in charge.	The Cost of any specific requirements with regards to Platform or civil works are excluded from SE GT PR SW GIS Ltd. Scope.	Please refer clause 16. SPECIFIC- EXCLUSIONS (NOT IN BIDDER'S SCOPE), 4. Open & Closed stores at site are not in bidder's scope
25	27	TESTING & MAINTENANCE EQUIPMENT SF6 Gas leakage detector. Gas filling and evacuating plant : (Gas Processing unit) SF6 gas analyzer: Portable Partial Discharge(PD) monitoring system (Shall generally applicable for 220kV&132 kV) Online Partial Discharge Monitoring System (Applicable for 765kV& 400 kV GIS)	The same shall be excluded from SE GT PR SW GIS Ltd. scope of supply.	Testing & Maintenance equipment shall only be offered, as per relevant schedule of BPS if indicated.

GIS Queries				
Project: 400/220 kV, 2x500 MVA GIS Substation JEWAR				
26	Annexure A, Sheet 2 of 2		Our type tested 245KV GIS has passive busbar design. We meet the requirement of service continuity, maintenance & repair without provision of any barrier in busbar. All the requirement of repair & maintenance as per specifications are met with passive non-segregated busbar design. This design is accepted by various utilities in India and Abroad. This type of passive non-segregated busbar design is working satisfactorily at site without any issues hence we request an acceptance of this design.	Please follow technical specification for compliance.
27	Annexure A, Sheet 1 of 2		Our type tested 400KV GIS has passive busbar design. We meet the requirement of service continuity, maintenance & repair without provision of any barrier in busbar. All the requirement of repair & maintenance as per specifications are met with passive non-segregated busbar design. This design is accepted by various utilities in India and Abroad. This type of passive non-segregated busbar design is working satisfactorily at site without any issues hence we request an acceptance of this design.	Please follow technical specification for compliance.
Annexure S11				
26	--	Requirement of PIR CBs	Please confirm the requirement of bay wise PIR CBs for 400 kV GIS.	Please refer ANNEXURE- 13 Of GIS Rev5A where as requirement of PIR if nay has been clarified '# As per BPS. Please rere the same alongwith BPS.
		Length of Transmission Line	Please provide length of all transmission lines associated with 220KV & 400KV GIS	The same shall be provided during contract stage
27	--	LCC	We understand that only soft logic interlock is to be provided in LCC. No hard wired interlock is envisaged. Kindly confirm the same.	Please follow technical specification for compliance.
Section Project				
28	10.3	Control Switching Device (CSD) is envisaged for 400kV Transformer bay & Bus Reactor bay.	There is no requirement of CSD for 220kV GIS. Please confirm whether our understanding is correct.	Bidder to please read bid price schedule for requirement of CSD
29	2.3	A. 400kV & 245kV Gas Insulated Switchgear In addition, all necessary platforms, supports, ladders and catwalks etc. as required for operation & maintenance work shall also be provided.	Platforms and catwalks etc. are excluded from SE GT PR SW GIS scope of supply.	Please follow technical specification for compliance.
30	2.3	iv. Testing and Maintenance equipment as per BPS.	Supply of Testing and Maintenance equipment is excluded from SE GT PR SW GIS scope of supply.	Testing and Maintenance equipment shall be applicable only if called in BPS.
31	New Para under Clause no.1	GIS of all voltage levels above 52kV class envisaged under a single package, shall be supplied from one GIS manufacturer who shall be responsible for design, manufacturing, erection, testing and commissioning of complete GIS switchyard under the Contract and any other responsibilities stipulated in the contract with respect to GIS portion	Kindly confirm applicability of this clause for this project requirement.	Pl ignore