Bharat Heavy Electricals Limited

(A Govt. of India Undertaking)
Transmission Business Group
Materials Management, 5th Floor, Plot No.25,
Sector-16A, Noida, Uttar Pradesh, PIN No: 201301
Phone: 0120-6748543, Email: gaurav.agarwal@bhel.in

CORRIGENDUM - 02 TO NIT NO-84687

Dated 02-09-2024

Subject: Corrigendum-02 to Tender enquiry for Pre-Bid Tie up with the GIS OEM for Supply & Services of 220 kV GIS for IOCL's Panipat 220kV GIS S/stn Tender / Project.

Project	: IOCL's Panipat 220kV GIS S/stn Tender
Equipment / Item	: Supply & Services of 220kV GIS
Enquiry No/Date	: Enquiry No_61Q2500228 Dtd: 16-08-2024
BHEL NIT NO	: 84687
Original Tender due date	**: 28-08-2024**
Extended due date	**: 02-09-2024**

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

A) Issuance of Technical Corrigendum Rev-01 along with Technical clarifications (enclosed). Due to change in BOQ, Revised price bid format (unpriced) is also enclosed and same need to be followed for bid submission.

B) Bidder to submit offer directly to **TENDER BOX only through email** on **tbmmtenderbox@bhel.in** for part-1 bid (i.e. techno-commercial bid) & **tbmmtender.pricebidbox@bhel.in** for Part-2 (i.e. PRICE BID).

C) Extension of due date of tender upto **09.09.2024**. All bids received till 14:00 Hrs on 09-09-24 shall be opened on 16:00 Hrs on same day through Tender Box.

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

Bidder to ensure submission of offer on or before due date.

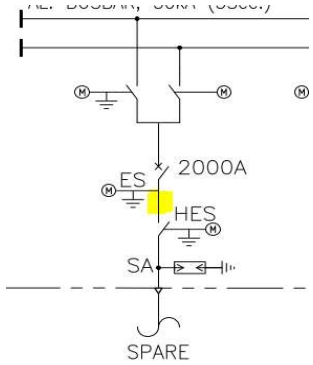
Note: Tender ID on CPP Portal is **2024_BHEL_39053_1.**

Thanking you

-------Sd/------
Gaurav Agarwal
BHEL TBG, NOIDA

TECHNICAL CLARIFICATIONS FOR 220kV GIS

Bidder-01

S.No	Reference Document	Reference Clause/ DocNo.	Customer's Requirement	Bidder's Remarks	BHEL's Reply
1	OVERALL KEY SINGLE LINE DIAGRAM – INTEGRATED MAH & PNCP	Page no.27 of technical specification document	CT Details 	We would like to inform that we have not received the CT requirement and CT ratio details as per received SLD. Currently we are considering as per previous IOCL executed project reference Requesting you to please provide	Please refer Section-2 & Section-4 for details of CT/ VT cores and other technical parameters. The requirement of combined/ Split CT shall be subject to customer approval during detailed engineering stage.
2	BOQ		CT Quantity 1.07 | GIS BAY SUPPLY: 220kV, 2000A, 50kA, SF6 OUTGOING GIS SPARE FEEDER BAY (FULLY EQUIPPED) MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS | SET | 2 | mechanism. (d) 1 SET- 1 NO x3 phase High Speed make proof Earthing Switch, comp operating mechanism. (e) 6 NO- 1 phase multi ratio Current Transformer In addition to above, Gas device, UHF sensors, Pressure Switches, Expa Flexible connections, Insulators etc. as applicable, however, Controlled S (CSD), Online PD Monitoring System, Local Control Cubicle and End Ter	Generally , CT quantity is based on CT ratio data as per customer requirement, CT can be provided either one side of CB or both side of CB. Also GIS type CT consist Protection and metering cores inside Single CT enclosure We request you to please provide CT data to check exact requirement of CT enclosures	Please refer Section-2 & Section-4 for details of CT/ VT cores and other technical parameters. The requirement of combined/ Split CT shall be subject to customer approval during detailed engineering stage.
3	BOQ	sr no. 1.12	LA Quantity As per BOQ 42 Nos 1.12 | GIS SUPPLY: 390KV, 1 PHASE SURGE ARRESTER WITH SURGE COUNTER (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) | NO | 42 | Please refer section-2 (TS for 220kV GIS)- Technical Specification. It is considered for ALL OUTGOING BAYS & BUS BAR MODULE only.	As per SLD We understood that LA considered for 10 outgoing bays = total 30 nos However for Busbars LA not shown in SLD but we are considering as per BOQ Kindly confirm	Kindly quote/ comply as per technical corrigendum01.
4	SPECIFICATION FOR EHV GAS INSULATED SWITCHGEAR 359755-MDR-000-ELE-SPC-0002 Rev. 1	5.1.12	Online temperature monitoring GIS shall be provided with Online temperature monitoring system and Partial Discharge system	We would like to inform that we shall provide online PD monitoring system. And if required, we can supply online gas monitoring system. (Generally temperature monitoring system is not applied GIS, the above two things are general practice for GIS monitoring system.) However , please provide more information about which temperature monitoring is required (ex. Enclosure body , inside enclosure etc.) accordingly we will check	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.

TECHNICAL CLARIFICATIONS FOR 220kV GIS

Bidder-01

S.No	Reference Document	Reference Clause/ DocNo.	Customer's Requirement	Bidder's Remarks	BHEL's Reply
5	SPECIFICATION FOR EHV GAS INSULATED SWITCHGEAR 359755-MDR-000-ELE-SPC-0002 Rev. 1	5.1.13	All enclosure shall be suitable for withstanding full internal arcing fault without damage	We would like to inform that Offered equipment was type tested for internal arc test at duration 0.3 second without burn through on the enclosure as per, IEC 62271-203,	It shall be as per customer approval during detailed engineeing stage.
7	SPECIFICATION FOR EHV GAS INSULATED SWITCHGEAR 359755-MDR-000-ELE-SPC-0002 Rev. 1	5.14	ECS System The Switchgear shall be hooked up with ECS system in accordance with project specification for ECS system	As per our understanding ECS system is EPC scope of supply In case of GIS , SF6 Gas density can be monitored in SAS by using hybrid gas density monitors , we shall provide its connections in LCC , further it can be connected to SAS by contractor	It shall be as per customer approval during detailed engineeing stage.
9	SPECIFICATION FOR EHV GAS INSULATED SWITCHGEAR 359755-MDR-000-ELE-SPC-0002 Rev. 1	6.1.3	Pre-Insertion Resistor	As per received SLD we understood that PIR is not required Kindly confirm	It shall be as per customer approval during detailed engineeing stage.
10	SPECIFICATION FOR EHV GAS INSULATED SWITCHGEAR 359755-MDR-000-ELE-SPC-0002 Rev. 1	6.5	Scope of CRP & BCU CRP shall house bay control units (BCUs) and protection relays. These panels shall also house the various selector switches, auxiliary relays, timers, local indications, alarms and facia annunciation window etc. to realize various interlocks as per requirement among circuit breakers, disconnectors and earth switches and for breaker pole discrepancy, anti-pumping etc.	We would like to inform that we shall provide provision to interconnect with CRP & BCU in our LCC panel , BCU will be mounted within CRP panel & will be in EPC Contractors supply scope	It shall be as per customer approval during detailed engineeing stage.
11	General		CSD cable	We shall provide the CSD mounting provision in GIS LCC panel with cables connection however CSD will be mounted at remote location(within CRP Panel) then cabling connection between CSD to LCC will be in EPC scope of supply	It shall be as per customer approval during detailed engineeing stage.

TECHNICAL CLARIFICATION FOR GIS

Bidder-02

S.No	Reference Document	Reference Clause/ DocNo.	Customer's Requirement	Bidder's Remarks	BHEL's Reply
1	SLD	Termination for Incoming bays in GIS Substation	As per our understanding, the Incoming 220 kV GIS bays has to be terminated with Cable. Please confirm our assumption	As per our understanding, the Incoming 220 kV GIS bays has to be terminated with Cable. Please confirm our assumption	Kindly refer BOQ/ technical specification and technical corrigendum01.
2	SLD	LA & VT	As per our understanding, LA requirement is only in outgoing bays and VT requirement is only in BBM bays. Kindly confirm our assumptions	As per our understanding, LA requirement is only in outgoing bays and VT requirement is only in BBM bays. Kindly confirm our assumptions	Kindly refer BOQ/ technical specification and technical corrigendum01.
3	SLD	Termination for Outgoing bays in GIS Substation	Kindly confirm whether the termination of Outgoing bays is with Cable termination or SF6 to air termination	Kindly confirm whether the termination of Outgoing bays is with Cable termination or SF6 to air termination	Kindly refer BOQ/ technical specification and technical corrigendum01.
4	SLD	Requirement of High speed earth switch in Trafo bays	High speed earth switches are required for line bays where high charges from lines from long distances have to be discharged. Hoever same is not the case with Transformer bays as Transformer is located near the GIS. Hence we propose to offer Work in progress earth switch in Trafo bays.	High speed earth switches are required for line bays where high charges from lines from long distances have to be discharged. Hoever same is not the case with Transformer bays as Transformer is located near the GIS. Hence we propose to offer Work in progress earth switch in Trafo bays.	Kindly refer BOQ/ technical specification and technical corrigendum01.
5	SLD	Rated current	As per our understanding, the Rated bus bar current shall be 2000 A at 40 Deg C ambient temperature. Please confirm	As per our understanding, the Rated bus bar current shall be 2000 A at 40 Deg C ambient temperature. Please confirm	Kindly refer BOQ/ technical specification and technical corrigendum01.
6	SLD	Future extension	Please confirm whether any future extension bays are envisaged on either side of the Substation	Please confirm whether any future extension bays are envisaged on either side of the Substation	Kindly refer BOQ/ technical specification and technical corrigendum01.
7	SLD	220 kV GIS shall be provided with Online Temperature monitoring System and Partial discharge monitoring system	Temperature monitoring & PD Monitoring system shall be in scope of EPC team.	Temperature monitoring & PD Monitoring system shall be in scope of EPC team.	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
8	SLD	GA Layout	Please share detailed GA layout	Please share detailed GA layout	Kindly refer BOQ/ technical specification and technical corrigendum01.
9	SLD	Current Transformer	As CT is not shown in GIS SLD, we understand single side CT is envisaged in all the bays including Bus sectionlizer & Bus coupler after the Circuit breaker. Please confirm and share detail CT parameters.	As CT is not shown in GIS SLD, we understand single side CT is envisaged in all the bays including Bus sectionlizer & Bus coupler after the Circuit breaker. Please confirm and share detail CT parameters.	Please refer Section-2 & Section-4 for details of CT/ VT cores and other technical parameters. The requirement of combined/ Split CT shall be subject to customer approval during detailed engineering stage.
10	GA layout	220 kV Switchyard	Please confirm whether 220 kV outdoor GIS switchyard is of AIS type or GIS type.	Please confirm whether 220 kV outdoor GIS switchyard is of AIS type or GIS type.	220 kV outdoor GIS switchyard is of AIS type.

TECHNICAL CLARIFICATION FOR GIS

Bidder-02

S.No	Reference Document	Reference Clause/ DocNo.	Customer's Requirement	Bidder's Remarks	BHEL's Reply
11	GA Layout	Position of LCC for 220 kV GIS	As per the shared layout, we understand the LCC for 220 kV GIS is ground mounted type. However we propose Bay mounted LCC which shall reduce GIS footprint and reduce Building size inturn. Please confirm the same	As per the shared layout, we understand the LCC for 220 kV GIS is ground mounted type. However we propose Bay mounted LCC which shall reduce GIS footprint and reduce Building size inturn. Please confirm the same	It shall be as per customer approval during detailed engineeing stage.
12	HV GIS Specification	Maximum distance between GIS/LCC and corresponding CRP shall be considered as 150 meters unless otherwise specified	We propose Bay mounted type LCC as Bay mounted LCC will reduce the GIS footprint and will reduce the building size inturn. Requesting your kind acceptance on the same	We propose Bay mounted type LCC as Bay mounted LCC will reduce the GIS footprint and will reduce the building size inturn. Requesting your kind acceptance on the same	It shall be as per customer approval during detailed engineeing stage.
13	HV GIS Specification	Earthing	Earthing from GIS enclosure to earth mats shall be in scope of EPC. GIS OEM shall provdie Earthing only upto GIS enclosures	Earthing from GIS enclosure to earth mats shall be in scope of EPC. GIS OEM shall provdie Earthing only upto GIS enclosures	Not acceptable. Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
14	HV GIS Specification	Interface with ECS System	This shall not be in scope of GIS OEM. We shall only supply cables from GIS upto LCC. Connection with CRP, ECS shall be in scope of EPC	This shall not be in scope of GIS OEM. We shall only supply cables from GIS upto LCC. Connection with CRP, ECS shall be in scope of EPC	It shall be as per customer approval during detailed engineeing stage.
15	HV GIS Specification	SF6 Gas Leakage Detector	SF6 leakage detector and other required tools & tackles shall be in scope of EPC	SF6 leakage detector and other required tools & tackles shall be in scope of EPC	Not acceptable. Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
16	HV GIS Specification	Gas filling and evacuating plant	Shall be in scope of EPC	Shall be in scope of EPC	Not acceptable. Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
17	HV GIS Specification	SF6 gas analyser	Shall be in scope of EPC	Shall be in scope of EPC	Not acceptable. Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
18	HV GIS Specification	Portable Partial Discharge(PD) monitoring system	Shall be in scope of EPC	Shall be in scope of EPC	Not acceptable. Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
19	HV GIS Specification	Pre-Insertion Resistor (if specified in job specification/ datasheet)	We understand the same is not applicable for this package of 220 kV GIS	We understand the same is not applicable for this package of 220 kV GIS	Noted, however, it shall be as per customer approval during detailed engineeing stage.
20	HV GIS Specification	Hydraulic Operated Mechanism	Not Applicable for our make GIS	Not Applicable for our make GIS	It shall be as per customer approval during detailed engineeing stage.
21	HV GIS Specification	Hydraulic Monitoring Device	Not Applicable for our make GIS	Not Applicable for our make GIS	It shall be as per customer approval during detailed engineeing stage.

TECHNICAL CLARIFICATION FOR GIS

Bidder-02

S.No	Reference Document	Reference Clause/ DocNo.	Customer's Requirement	Bidder's Remarks	BHEL's Reply
22	HV GIS Specification	Voltage Transformer	GIS type Voltage Transformer shall only be applicable for Bus bar measurement and the same has been considered.	GIS type Voltage Transformer shall only be applicable for Bus bar measurement and the same has been considered.	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
23	HV GIS Specification	Further power supply distribution for each LCC and to CRP shall be done by vendor.	Shall be in scope of EPC	Shall be in scope of EPC	It shall be as per customer approval during detailed engineeing stage.
24	HV GIS Specification	Two (2) numbers of 220V DC supply feeders will be provided by Owner at one location in the LCC for complete switchgear. Further DC power supply to each LCC and to each CRP shall be done by vendor.	Providing DC supply shall be in scope of EPC	Providing DC supply shall be in scope of EPC	It shall be as per customer approval during detailed engineeing stage.
25	HV GIS Specification	Control Relay Panels	Shall be in scope of EPC	Shall be in scope of EPC	It shall be as per customer approval during detailed engineeing stage.
26	HV GIS Specification	Voltage Detectors	Voltage detectors for Incoming & outgoing bay shall be provide in the Male & Female Termination kits but the same is not applicable for bus bar. Presence of Voltage in Busbars can be checked through Bus VTs which shall be in our scope. As Male & Female Termination kits are in scope of EPC team, the voltage detector unit shall be supplied by EPC only to accommodate with Cable termination kits if required by IOCL.	Voltage detectors for Incoming & outgoing bay shall be provide in the Male & Female Termination kits but the same is not applicable for bus bar. Presence of Voltage in Busbars can be checked through Bus VTs which shall be in our scope. As Male & Female Termination kits are in scope of EPC team, the voltage detector unit shall be supplied by EPC only to accommodate with Cable termination kits if required by IOCL.	It shall be as per customer approval during detailed engineeing stage.
27	HV GIS Specification	Outdoor SF6 - Air Bushings	Please confirm terminations of all the bays as the same is not clear from the SLD. Bays where Bus ducts are required. Kindly share the GA layout for bus duct routing.	Please confirm terminations of all the bays as the same is not clear from the SLD. Bays where Bus ducts are required. Kindly share the GA layout for bus duct routing.	Kindly refer BOQ/ technical specification and technical corrigendum01.
28	HV GIS Specification	All the equipment should have been successfully type tested as per the relevant standards. Type tests shall not have been conducted earlier than five years. In case the type tests were conducted earlier than 5 years, such type tests shall be carried out by the vendor free of cost before commencement of supply.	As per CEA guidelines, the type tests for GIS shall be valid for 15 years. Reqeuesting your kind acceptance.	As per CEA guidelines, the type tests for GIS shall be valid for 15 years. Reqeuesting your kind acceptance.	It shall be as per customer approval during detailed engineeing stage.
29	HV GIS Specification	GIS shall be provided with Online temperature monitoring system and Partial Discharge system.	Online Temperature monitoring facility is not available in the offered GIS. Requesting your kind acceptance	Online Temperature monitoring facility is not available in the offered GIS. Requesting your kind acceptance	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
30	HV GIS Specification	Each of the equipment devices including CB, Disconnector switch, Earthing switch, CT, VT and busbars etc.	Separate nameplate shall be provided only for CT, VT. For Disconnector, Earth switch & CB a single Rating plate shall be provided.	Separate nameplate shall be provided only for CT, VT. For Disconnector, Earth switch & CB a single Rating plate shall be provided.	It shall be as per customer approval during detailed engineeing stage.

TECHNICAL CLARIFICATION FOR GIS

Bidder-02

S.No	Reference Document	Reference Clause/ DocNo.	Customer's Requirement	Bidder's Remarks	BHEL's Reply
31	HV GIS Specification	Over pressure for each gas compartment of the bay.	The gas pressure difference between 3 compartments in GIS is not significant. Thus over pressure alarm is not envisaged.	The gas pressure difference between 3 compartments in GIS is not significant. Thus over pressure alarm is not envisaged.	It shall be as per customer approval during detailed engineeing stage.
32	HV GIS Specification	Additional Requirements for Safety Earthing Switches	As the earthing of our GIS is through GIS enclosure, hence no additional cables & copper braids are required. We shall provide 3 positions on the enclosure from where earthing connection can be connected to Earth mat.	As the earthing of our GIS is through GIS enclosure, hence no additional cables & copper braids are required. We shall provide 3 positions on the enclosure from where earthing connection can be connected to Earth mat.	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
33	BHEL Specification	This technical specification covers the requirements of design, engineering, fabrication, manufacturing, shop assembly, inspection and testing at manufacturer's works before supply, proper packing and delivery to project site, supervision of unloading & storage at site, and supervision of installation/ erection, site testing & commissioning, putting into successful operation complete with all materials, support structures, anchoring bolts, accessories, commissioning spares & maintenance spares, special spanners, tools & tackles, any specific required ancillary services, SF6 gas for first filling & spare etc. including training of Customer/ BHEL personnel for 220kV GIS with LCC & its Accessories complete in all respects for efficient & trouble-free operation mentioned under this specification.	Unloading and storage at site is excluded from GIS OEM scope of supply.	Unloading and storage at site is excluded from GIS OEM scope of supply.	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
34	BHEL Specification	Insulation Co-ordination studies	Insulation co-ordination study shall be excluded from scope of GIS OEM. Kindly confirm	Insulation co-ordination study shall be excluded from scope of GIS OEM. Kindly confirm	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
35	BHEL Specification	220 kV GIS Online Temperature monitoring	We do not recommend any kind of temperature monitoring for 220 kV GIS and the same shall be excluded from our scope of supply. Kindly confirm	We do not recommend any kind of temperature monitoring for 220 kV GIS and the same shall be excluded from our scope of supply. Kindly confirm	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
36	BHEL Specification	Storage shall be provided	Storage of GIS at site shall be excluded from scope of GIS OEM	Storage of GIS at site shall be excluded from scope of GIS OEM	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
37	BHEL Specification	CT/ VT parameters mentioned in CT VT parameter document is indicative only. Bidder has to ensure correctness of CT/VT sizing for GIS during contact stage / detailed Engineering stage.	CT sizing calculation is excluded from GIS OEM scope of supply. Request you to kindly provide the ratio and parameters to provide the technical offer.	CT sizing calculation is excluded from GIS OEM scope of supply. Request you to kindly provide the ratio and parameters to provide the technical offer.	Please refer Section-2 & Section-4 for details of CT/ VT cores and other technical parameters. The requirement of combined/ Split CT shall be subject to customer approval during detailed engineering stage.

TECHNICAL CLARIFICATION FOR GIS

Bidder-02

S.No	Reference Document	Reference Clause/ DocNo.	Customer's Requirement	Bidder's Remarks	BHEL's Reply
38	BHEL Specification	Any change in baypitch (distance between bays) as per civil requirement for during detailed engineering stage shall be incorporated by the bidder without any cost & delivery implication to BHEL	Any change in configuration due to which the length of bus duct is changed or any additional module is required shall be with cost & time implication to BHEL. Request you to note the same	Any change in configuration due to which the length of bus duct is changed or any additional module is required shall be with cost & time implication to BHEL. Request you to note the same	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
39	BHEL Specification	Walkway is required	Our 220 kV 8DN9 type GIS is easily accessible from ground. However we will providing additionally A-type ladder for additional accessiblity. Hence we do not envisage Walkway for 220 kV GIS. Kindly confirm	Our 220 kV 8DN9 type GIS is easily accessible from ground. However we will providing additionally A-type ladder for additional accessiblity. Hence we do not envisage Walkway for 220 kV GIS. Kindly confirm	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
40	BHEL Specification	Earthing of GIS	Complete earthing of GIS and Substation shall be in scope of BHEL. We shall provide earthing upto the GIS enclosure. Kindly confirm	Complete earthing of GIS and Substation shall be in scope of BHEL. We shall provide earthing upto the GIS enclosure. Kindly confirm	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
41	BHEL Specification	In those design where bus bar is continuous, provision is to be made available for isolation of Individual bay without disturbing adjacent bay	We shall offer passive continous busbar for 220 kV GIS. Kindly confirm the same	We shall offer passive continous busbar for 220 kV GIS. Kindly confirm the same	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
42	BHEL Specification	Separate gas compartment for CT & Line disconnector.	CT being a passive component, we envisage to keep it in same as compartment in Line/ Bus bar disconnector. Kindly confirm	CT being a passive component, we envisage to keep it in same as compartment in Line/ Bus bar disconnector. Kindly confirm	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
43	BHEL Specification	The bus bar system shall be sectionalized for each bay & contained in individual SF6 gas tight bus compartment to prevent contamination of the gas of the whole bus bar due to fault in one bay zone & refill lesser Qty of SF6 gas	As we offer passive continous bus bar, gas partition is not required for 220 kV passive bus bar GIS. Kindly confirm	As we offer passive continous bus bar, gas partition is not required for 220 kV passive bus bar GIS. Kindly confirm	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
44	BHEL Specification	The layout shall ensure that GIS bus link section is provided for future extension of the GIS buses to avoid degassing and modification of existing bus	WE confirm that GIS extension can be done with shut down of 1 bus of the 2 and without any shutdown or minimal shutdown of adjacent bay. Kindly confirm.	WE confirm that GIS extension can be done with shut down of 1 bus of the 2 and without any shutdown or minimal shutdown of adjacent bay. Kindly confirm.	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
45	BOQ	CSD requirement	We understand CSD or PIR is not required for 220 kV GIS. Kindly confirm	We understand CSD or PIR is not required for 220 kV GIS. Kindly confirm	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
46	BOQ	6 nos. of CT in line, Trafo & Bus coupler bays	As we can fit all the cores inside single housing, we propose CTs on only one side of Circuit breaker. Kindly confirm.	As we can fit all the cores inside single housing, we propose CTs on only one side of Circuit breaker. Kindly confirm.	Please refer Section-2 & Section-4 for details of CT/ VT cores and other technical parameters. The requirement of combined/ Split CT shall be subject to customer approval during detailed engineering stage.
47	BOQ	Requirement of Pressure Switches	We understand normal 3 stge density monitor has to be supplied. Kindly confirm	We understand normal 3 stge density monitor has to be supplied. Kindly confirm	Kindly refer BOQ/ technical specification and technical corrigendum01.

TECHNICAL CLARIFICATION FOR GIS

Bidder-02

S.No	Reference Document	Reference Clause/ DocNo.	Customer's Requirement	Bidder's Remarks	BHEL's Reply
48	BOQ	800 m Bus duct requiremend	Request you to kindly provide the GA of the substation for Bus duct routing. Actual length of bus duct will be provided as per the actual bus duct routing.	Request you to kindly provide the GA of the substation for Bus duct routing. Actual length of bus duct will be provided as per the actual bus duct routing.	Kindly refer BOQ/ technical specification and technical corrigendum01.
49	BOQ	SF6 to oil bushing	We understand that SF6 to air bushing requirement is envisaged. Kindly confirm	We understand that SF6 to air bushing requirement is envisaged. Kindly confirm	Kindly refer BOQ/ technical specification and technical corrigendum01.
50	HV GIS Specification	Type tests	We envisage no special additional type tests for HV GIS. All type tests are as per IEC 62271 and the validity of type tests is as per CEA guildelines i.e 15 years	We envisage no special additional type tests for HV GIS. All type tests are as per IEC 62271 and the validity of type tests is as per CEA guildelines i.e 15 years	It shall be as per customer approval during detailed engineeing stage.
51	HV GIS Specification	HMI Panel	We understand there is no requirement of HMI panel in HV GIS. Kindly confirm	We understand there is no requirement of HMI panel in HV GIS. Kindly confirm	It shall be as per customer approval during detailed engineeing stage.
52	HV GIS Specification	Pressure gauges or density monitors shall have two-stage temperature compensated pressure (gas-density continuous monitoring) switches with 6.5-20mA analog output.	We propose normal 3 stage Density monitors with Analog output as per our standard part of supply. Kindly confirm	We propose normal 3 stage Density monitors with Analog output as per our standard part of supply. Kindly confirm	Kindly quote/ comply as per BOQ/ technical specification and technical corrigendum01.
53	HV GIS Specification	Detailed CT VT parameters	Request you to kindly share detailed CT VT parameters for 245 kV GIS at IOCL Panipat for our review & confirmation.	Request you to kindly share detailed CT VT parameters for 245 kV GIS at IOCL Panipat for our review & confirmation.	Please refer Section-2 & Section-4 for details of CT/ VT cores and other technical parameters. The requirement of combined/ Split CT shall be subject to customer approval during detailed engineering stage.

Ref. No. **Technical Corrigendum-01**

Project: **Pre-Bid Tie up for,**
EPCC 03 Package 220KV GIS AND ASSOCIATED WORKS for Maleic Anhydride Project at Panipat Refinery Petrochemical Complex of M/s. Indian Oil Corporation Limited.t

Item/ Material: 220kV Gas Insulated Switchgear (GIS) with itsaccessories

Date: **28.08.2024**

Sl. No.	Volume/ Section/ Clause	Volume/ Section/ Clause as Existing	Volume/ Section/ Clause as Amended/ Added in Technical Corrigendum-01
2	'Technical Specification/ Section-1	Please refer Section-1 of Technical Specification/ Bill of Quantities Annexure- BOQ_IOCL	BOQ_220kV GIS_SUPPLY_IOCL PANIPAT & BOQ_220kV GIS_SERVICES_IOCL PANIPAT (Please refer revised BOQ).
3	'Technical Specification/ Section 1	Please refer Technical Specification/ Single Line Diagram REV00	Please refer Technical Specification/ Single Line Diagram REV00 with additional details (Please refer the document).
4	Technical Specification/ section-1	Please refer Technical Specification/ Tentative Layout Drawing	Please refer Technical Specification/ Tentative Layout Drawing with additional details (Please refer the document).

Note:
1. The changes/ revision are marked/ highlighted in yellow/ rectangle box.
2. Amendment/ addendum/ clarification/ corrigendum issued herein shall form part of Technical Specification.
Bidders to please note that amendment/addendum/ clarification/ corrigendum issued shall supersede the respective Volume/ Section/ Clause of Technical Specification Document to the extent for the Volume/ Section/ Clause or part thereof the amendment is issued.

ANNEXURE: BOQ_220kV GIS_SUPPLY_IOCL PANIPAT
REV No: 02
DATE: 28.08.2024

Sl. No.	Item Description	Unit	Qty.	Remarks
1.0	**SUPPLY- GIS: 220KV, 50KA FOR 3S, GAS INSULATED SWITCHGEAR (GIS) AS PER TS (Two/ Double bus scheme)**			
1.01	GIS SUPPLY: 220KV, 2000A, 50kA, SF6 GIS BUS BAR MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	SET	4	
1.02	GIS SUPPLY: 220KV, 50kA, SF6 BUS PT/ VT BAY MODULE WITH BUS EARTH SWITCH (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	SET	4	220kV PT/ VT BAY MODULE shall include following but not limited to, (a) 1 SET- 1 NO x3 phase Disconnector, complete with operating mechanism. (b) 1 SET- 1 NO x3 phase Maintenance Grounding Switch, complete with operating mechanism (c) 1 SET- 1 NO x3 phase High Speed make proof Earthing Switch, complete with operating mechanism. (d) 3 NO- 1 phase multi winding Voltage Transformer In addition to above, Gas device, UHF sensors, Pressure Switches, Expansion joints/ Flexible connections, Insulators etc. as applicable shall be included, however, Online PD Monitoring System, Local Control Cubicle and End Terminations, if applicable shall be covered separately. GIS shall be complete with all necessary terminal boxes, inspection windows, SF6 gas, grounding connection, pipings for gas monitoring system, trays, support structures with mounting hardwares, walkways, interconnecting cables with glands, ferrules, lugs etc. Please refer section-2 (TS for 220kV GIS)- Technical Specification.
1.03	GIS BAY SUPPLY: 220kV, 2000A, 50 kA, SF6 INCOMING GIS LINE FEEDER BAY MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	SET	2	220kV INCOMING GIS LINE FEEDER BAY MODULE shall include following but not limited to, (a) 1 SET- 1 NO x3 phase Circuit Breaker, compatible for Controlled Switching Facility (if applicable), complete with operating mechanism (b) 3 SET- 1 NO x3 phase Disconnector, complete with operating mechanism. (c) 2 SET- 1 NO x3 phase Maintenance Grounding Switch, complete with operating mechanism. (d) 1 SET- 1 NO x3 phase High Speed make proof Earthing Switch, complete with operating mechanism. (e) 6 NO- 1 phase multi ratio Current Transformer In addition to above, Gas device, UHF sensors, Pressure Switches, Expansion joints/ Flexible connections, Insulators etc. as applicable, however, Controlled Switching Device (CSD), Online PD Monitoring System, Local Control Cubicle and End Terminations, if applicable shall be covered separately. GIS shall be complete with all necessary terminal boxes, inspection windows, SF6 gas, grounding connection, pipings for gas monitoring system, trays, support structures with mounting hardwares, walkways, interconnecting cables with glands, ferrules, lugs etc. Please refer section-2 (TS for 220kV GIS)- Technical Specification.
1.04	GIS BAY SUPPLY: 220kV, 2000A, 50kA, SF6 GIS BUS COUPLER BAY MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	SET	2	220kV GIS BUS COUPLER BAY MODULE shall include following but not limited to, (a) 1 SET- 1 NO x3 phase Circuit Breaker, compatible for Controlled Switching Facility (if applicable), complete with operating mechanism (b) 2 SET- 1 NO x3 phase Disconnector, complete with operating mechanism. (c) 2 SET- 1 NO x3 phase Maintenance Grounding Switch, complete with operating mechanism. (d) 6 NO- 1 phase multi ratio Current Transformer In addition to above, Gas device, UHF sensors, Pressure Switches, Expansion joints/ Flexible connections, Insulators etc. as applicable, however, Controlled Switching Device (CSD), Online PD Monitoring System (OPMS), Local Control Cubicle (LCC) and End Terminations, if applicable shall be covered separately. GIS shall be complete with all necessary terminal boxes, inspection windows, SF6 gas, grounding connection, pipings for gas monitoring system, trays, support structures with mounting hardwares, walkways, interconnecting cables with glands, ferrules, lugs etc. Please refer section-2 (TS for 220kV GIS)- Technical Specification.
1.05	GIS BAY SUPPLY: 220kV, 2000A, 50kA, SF6 GIS BUS SECTIONALISER BAY MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	SET	2	220kV GIS BUS SECTIONALIZAER BAY MODULE shall include following but not limited to, (a) 1 SET- 1 NO x3 phase Circuit Breaker, compatible for Controlled Switching Facility (if applicable), complete with operating mechanism (b) 2 SET- 1 NO x3 phase Disconnector, complete with operating mechanism. (c) 2 SET- 1 NO x3 phase Maintenance Grounding Switch, complete with operating mechanism. (d) 6 NO- 1 phase multi ratio Current Transformer In addition to above, Gas device, UHF sensors, Pressure Switches, Expansion joints/ Flexible connections, Insulators etc. as applicable, however, Controlled Switching Device (CSD), Online PD Monitoring System (OPMS), Local Control Cubicle (LCC) and End Terminations, if applicable shall be covered separately. GIS shall be complete with all necessary terminal boxes, inspection windows, SF6 gas, grounding connection, pipings for gas monitoring system, trays, support structures with mounting hardwares, walkways, interconnecting cables with glands, ferrules, lugs etc. Please refer section-2 (TS for 220kV GIS)- Technical Specification.
1.06	GIS BAY SUPPLY: 220kV, 2000A, 50 kA, SF6 OUTGOING GIS TRANSFORMER FEEDER BAY MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	SET	8	220kV GIS LINE FEEDER BAY MODULE shall include following but not limited to, (a) 1 SET- 1 NO x3 phase Circuit Breaker, compatible for Controlled Switching Facility (if applicable), complete with operating mechanism (b) 3 SET- 1 NO x3 phase Disconnector, complete with operating mechanism. (c) 2 SET- 1 NO x3 phase Maintenance Grounding Switch, complete with operating mechanism. (d) 1 SET- 1 NO x3 phase High Speed make proof Earthing Switch, complete with operating mechanism. (e) 6 NO- 1 phase multi ratio Current Transformer In addition to above, Gas device, UHF sensors, Pressure Switches, Expansion joints/ Flexible connections, Insulators etc. as applicable, however, Controlled Switching Device (CSD), Online PD Monitoring System, Local Control Cubicle and End Terminations, if applicable shall be covered separately. GIS shall be complete with all necessary terminal boxes, inspection windows, SF6 gas, grounding connection, pipings for gas monitoring system, trays, support structures with mounting hardwares, walkways, interconnecting cables with glands, ferrules, lugs etc. Please refer section-2 (TS for 220kV GIS)- Technical Specification.

ANNEXURE: BOQ_220kV GIS_SUPPLY_IOCL PANIPAT
REV No: 02
DATE: 28.08.2024

Sl. No.	Item Description	Unit	Qty.	Remarks
1.07	GIS BAY SUPPLY: 220kV, 2000A, 50kA, SF6 OUTGOING GIS SPARE FEEDER BAY (FULLY EQUIPPED) MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	SET	2	220kV OUTGOING GIS SPARE FEEDER BAY MODULE shall include following but not limited to, (a) 1 SET- 1 NO x3 phase Circuit Breaker, compatible for Controlled Switching Facility (if applicable), complete with operating mechanism (b) 3 SET- 1 NO x3 phase Disconnector, complete with operating mechanism. (c) 2 SET- 1 NO x3 phase Maintenance Grounding Switch, complete with operating mechanism. (d) 1 SET- 1 NO x3 phase High Speed make proof Earthing Switch, complete with operating mechanism. (e) 6 NO- 1 phase multi ratio Current Transformer In addition to above, Gas device, UHF sensors, Pressure Switches, Expansion joints/ Flexible connections, Insulators etc. as applicable, however, Controlled Switching Device (CSD), Online PD Monitoring System, Local Control Cubicle and End Terminations, if applicable shall be covered separately. GIS shall be complete with all necessary terminal boxes, inspection windows, SF6 gas, grounding connection, pipings for gas monitoring system, trays, support structures with mounting hardwares, walkways, interconnecting cables with glands, ferrules, lugs etc. Please refer section-2 (TS for 220kV GIS)- Technical Specification.
1.08	GIS BAY SUPPLY: ONLINE TEMPERATURE MONITORING & PARTIAL DISCHARGE SYSTEM	SET	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
1.09	GIS SUPPLY: 220KV, CONTROLLED SWITCHING DEVICE (CSD) FOR 220KV, 3- PH CIRCUIT BREAKER	SET	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
1.10	SUPPLY- GIS : 220KV, 2000A, 1 PHASE GAS INSULATED BUS DUCT (INCLUDING SF6 GAS, STRUCTURE WITH HARDWARES AND EARTHING MATERIALS)	MTRS	~~800/~~ 1200	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
1.11	GIS SUPPLY: 220KV, 2000A, 1 PHASE SF6 TO AIR BUSHING (POLYMER) (INCLUDING SF6 GAS, STRUCTURE WITH HARDWARES AND EARTHING MATERIALS)	NO	6	Please refer section-2 (TS for 220kV GIS)- Technical Specification. It is considered for INCOMING BAYS only.
1.12	GIS SUPPLY: 390KV, 1 PHASE SURGE ARRESTER WITH SURGE COUNTER (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS)	NO	42	Please refer section-2 (TS for 220kV GIS)- Technical Specification. It is considered for ALL OUTGOING BAYS & BUS BAR MODULE only.
1.13	GIS SUPPLY: 220KV, 2000A, 1 PHASE SF6 TO OIL BUSHING (POLYMER) (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS)	NO	~~30/~~ 12	Please refer section-2 (TS for 220kV GIS)- Technical Specification. It is considered for OUTGOING BAYS- STYRENE & MAH S/stn
1.14	GIS SUPPLY: 220KV, 2000A, 1 PHASE CABLE CONNECTION MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS)	NO	18	Please refer section-2 (TS for 220kV GIS)- Technical Specification. 1 phase, Cable connection module shall be suitable upto 1000sqmm cable. It is considered for balance OUTGOING BAYS including Spare bays.
1.15	GIS SUPPLY: 220KV, 1 PHASE VOLTAGE TRASNFORMER (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS)	NO	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
1.16	GIS SUPPLY: LOCAL CONTROL CUBICLES	SET	16	Please refer section-2 (TS for 220kV GIS)- Technical Specification. It is considered for ALL BAYS only.
2.0	**SUPPLY- GIS: SPECIAL TOOLS AND TESTING & MAINTENANCE INSTRUMENTS AS PER TS**			
2.01	GIS SUPPLY: SF6 GAS LEAKAGE DETECTOR	SET	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
2.02	GIS SUPPLY: SF6 GAS FILLING AND EVACUATING PLANT	SET	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
2.03	GIS SUPPLY: SF6 GAS ANALYSER	SET	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
2.04	GIS SUPPLY: PORTABLE PARTIAL DISCHARGE MEASUREMENT SET	SET	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
2.05	GIS SUPPLY: SF6 TOPPING SYSTEM	SET	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
2.06	GIS SUPPLY: SF6 GAS HANDLING PLANT/ SERVICE CART	SET	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
2.07	GIS SUPPLY: PORTABLE LADDER WITH ADJUSTABLE HEIGHT	SET	1	Please refer section-2 (TS for 220kV GIS)- Technical Specification.
3	**SPARES- GIS: 220KV, 50KA FOR 3S, GAS INSULATED SWITCHGEAR (GIS) AS PER TS**			
3.01	GIS SPARES: NUMERICAL RELAYS	NO.	2	Each type and rating
3.02	GIS SPARES: CT/ PT/ CONTROL TRANSFORMER (ALL TYPES AND RATINGS)	NO.	3	Each type and rating
3.03	GIS SPARES: POWER & CONTROL FUSES	NO.	10	Each rating
3.04	GIS SPARES: SF6 GAS LEAKAGE DETECTOR	SET	1	Each type and rating
3.05	GIS SPARES: DIGITAL MULTIFUNCTION METERS	NO.	1	Each bus
3.06	GIS SPARES: INDICATING LAMPS	NO.	5	Each colour

ANNEXURE: BOQ_220kV GIS_SUPPLY_IOCL PANIPAT
REV No: 02
DATE: 28.08.2024

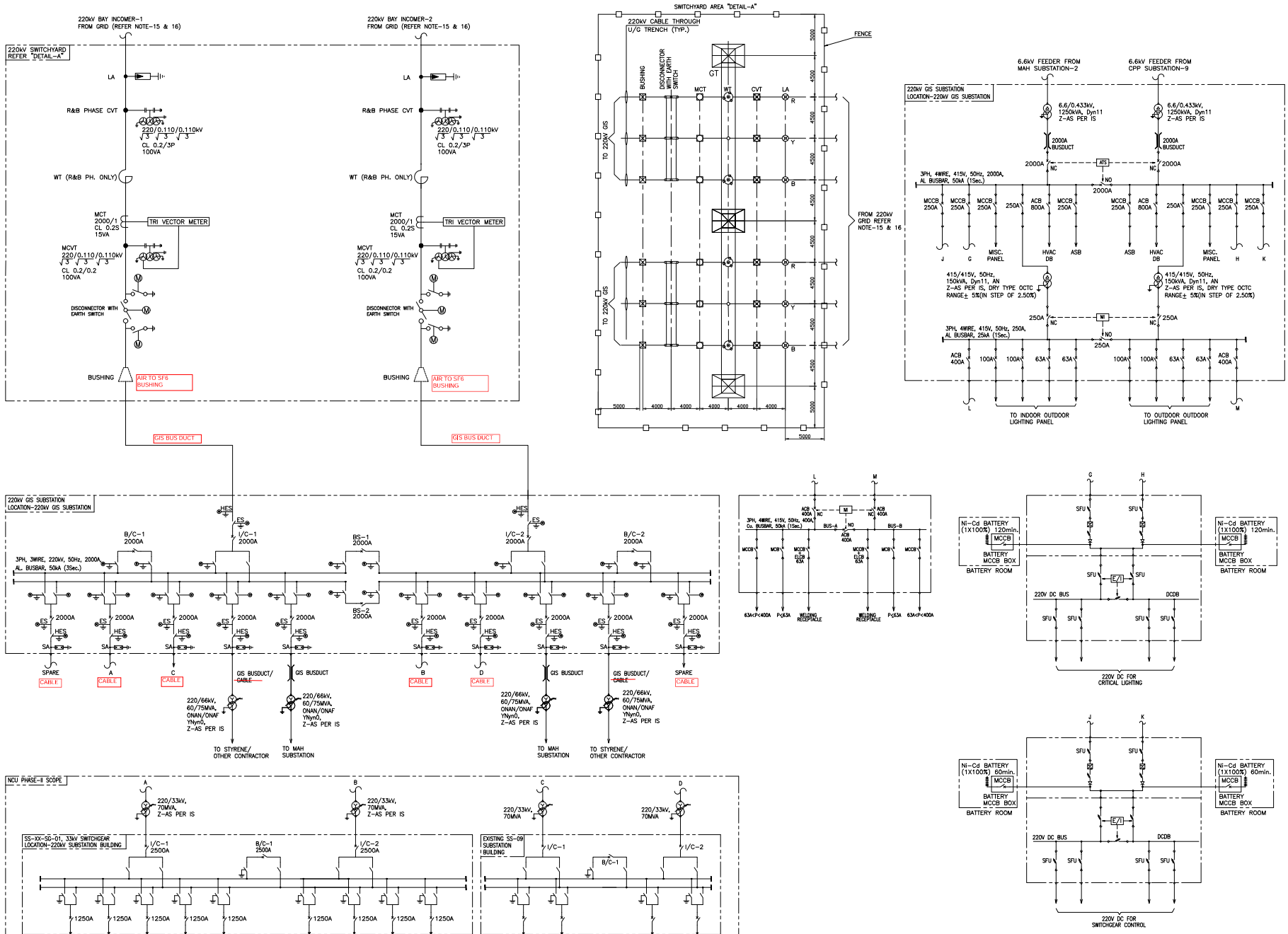
Sl. No.	Item Description	Unit	Qty.	Remarks
4.0	**SPARES- GIS: <u>REFERENCE UNIT PRICE FOR ADDITION/ DELETION</u> OF SUPPLY ITEMS** (Unit Prices of Individual Equipment included here or in manadatory spares are required for any Addition/Deletion of Equipment and replacement of damaged items. Bidder to ensure that the unit prices have a logical relationship with prices of assemblies in main items. Quoting for unit prices is mandatory and shall be considered for evaluation)			
4.01	SUPPLY- GIS: SPARES: 220KV, OPERATING MECHANISM FOR CIRCUIT BREAKER COMPLETE IN ALL RESPECT	Set	1	
4.02	SUPPLY- GIS: SPARES: 220KV, OPERATING MECHANISM FOR DISCONNECTOR COMPLETE IN ALL RESPECT	Set	1	
4.03	SUPPLY- GIS: SPARES: 220KV, OPERATING MECHANISM FOR MAINTENANCE EARTHING SWITCH COMPLETE IN ALL RESPECT	Set	1	
4.04	SUPPLY- GIS: SPARES: 220KV, OPERATING MECHANISM FOR FAST ACTING/ HIGH SPEED GROUNDING SWITCH COMPLETE IN ALL RESPECT	Set	1	
4.05	SUPPLY- GIS: SPARES: 220KV, MAINTENANCE EARTHING SWITCH COMPLETE IN ALL RESPECT	Set	1	
4.06	SUPPLY- GIS: SPARES: 220KV, FAST ACTING/ HIGH SPEED GROUNDING SWITCH COMPLETE IN ALL RESPECT	Set	1	
4.07	SUPPLY- GIS: SPARES: 220KV, SINGLE PHASE BUS BAR	Mtrs	1	Complete in all respect.
4.08	SUPPLY- GIS: SPARES: 220KV, GIS METALLIC ENCLOSURE	Kgs	50	
4.09	SUPPLY- GIS: SPARES: 220KV, EXPANSION JOINTS	Set	1	1set= 1 nos. of each type and each rating.
4.10	SUPPLY- GIS: SPARES: 220KV, FLEXIBLE CONNECTIONS	Set	1	1set= 1 nos. of each type and each rating.
4.11	SUPPLY- GIS: SPARES: 220KV, BARRIER INSULATOR	Set	1	1set= 1 nos. of each type and each rating.
4.12	SUPPLY- GIS: SPARES: 220KV, NON-BARRIER INSULATOR	Set	1	1set= 1 nos. of each type and each rating.
4.13	SUPPLY- GIS: SPARES: 220KV, GAS SEALS	Set	1	1set= 1 nos. of each type and each rating.
4.14	SUPPLY- GIS: SPARES: 220KV, GAS DENSITY MONITOR SWITCH	Set	1	1set= 1 nos. of each type and each rating.
4.15	SUPPLY- GIS: SPARES: 220KV, GAS PRESSURE SWITCH	Set	1	1set= 1 nos. of each type and each rating.
4.16	SUPPLY- GIS: SPARES: 220KV, TEE BEND	Set	1	1set= 1 nos. of each type and each rating.
4.17	SUPPLY- GIS: SPARES: 220KV, ANGLE BEND	Set	1	1set= 1 nos. of each type and each rating.
4.18	SUPPLY- GIS: SPARES: 220KV, L-BEND	Set	1	1set= 1 nos. of each type and each rating.
4.19	SUPPLY- GIS: SPARES: 220KV, VOLATGE DETECTORS	Set	1	1set= 1 nos. of each type and each rating.

ANNEXURE BOQ_220kV GIS_SERVICE_IOCL PANIPAT
REV No: 02
DATE: 28.08.2024

Sl. No.	Description	Unit	Quantity	Remarks
5.0	**SERVICES- GIS : 220KV, 50KA FOR 3S, GAS INSULATED SWITCHGEAR (GIS) AS PER TS**			
5.01	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF GIS	Bays	16	Supervision of erection of GIS with main bus, complete as per TS in all respect including LCC and its accessories. It also includes verification of materials for proper storage at site for final storage. Earthing, SF6 Gas Filing works, Internal Cabling from GIS to LCC, including Structure Works are covered under this item. GIS Bus Duct, SF6 to Air Bushing (SAB)/ SF6 to Oil Bushing (SOB), Surge Arrester, VT are not covered in this BOQ item.
5.02	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1-PHASE GAS INSULATED BUS DUCT	MTR	~~800/~~ 1200	Supervision of erection of GIB complete as per TS in all respect. GIB shall be considered from first equipment of GIS. Earthing, SF6 Gas Filing works, Internal Cabling with tray work including Structure Works are covered under this item.
5.03	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE SF6 TO AIR BUSHING	SET	6	Supervision of erection of SF6 to Air Bushing complete as per TS in all respect. Earthing, SF6 Gas Filing works, Internal Cabling with tray work, including Structure Works are covered under this item.
5.04	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE SF6 TO OIL BUSHING (POLYMER)	SET	~~30/~~ 12	Supervision of erection of SF6 to Oil Bushing complete as per TS in all respect. Earthing, SF6 Gas Filing works, Internal Cabling with tray work, including Structure Works are covered under this item.
5.05	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE CABLE CONNECTION MODULE	SET	18	Supervision of erection of Cable connection module complete as per TS in all respect. Earthing, SF6 Gas Filing works, Internal Cabling with tray work, including Structure Works are covered under this item.
5.06	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE SURGE ARRESTER WITH SURGE COUNTER	SET	42	Supervision of erection of Surge Arrester complete as per TS in all respect. Earthing, SF6 Gas Filing works, Internal Cabling with tray work, including Structure Works are covered under this item.
5.07	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE VOLTAGE TRASNFORMER	SET	1	Supervision of erection of Voltage Transformer complete as per TS in all respect. Earthing, SF6 Gas Filing works, Internal Cabling with tray work, including Structure Works are covered under this item.
5.08	SERVICES- 220kV GIS: TESTING & COMMISSIONING OF GIS	Bays	16	Testing and commissioning of complete GIS system including main bus, LCC and associated system (LA, VT, CSD etc.) is to be executed by bidder. All the special testing instruments, kits, T&P etc. are to be arranged by bidder on returnable basis. Please refer relevant section of technical specification for details.
5.09	SERVICES- 220kV GIS : TESTING & COMMISSIONING OF GAS INSULATED BUS DUCT	MTR	~~800/~~ 1200	Testing and commissioning of GIB complete as per TS in all respect. GIB shall be considered from first equipment of GIS. All the special testing instruments, kits, T&P etc. are to be arranged by bidder on returnable basis. Please refer relevant section of technical specification for details.
5.10	SERVICES- 220kV GIS : FINAL SUCCESSFUL HV/ POWER FREQUENCY TESTING OF GIS INCLUDING ARRANGING OF HV TEST KIT ALONG WITH OPERATOR	Bays	16	Carrying out successful HV/ Power Frequency Testing of GIS as per IEC including Arrangement of HV Test kit with operator (on returnable basis) shall be in scope of bidder, which includes charges of HV test kit with operator, accessories & tools required for completion of HV testing. The quoted price shall include GIS bays including Main Bus, GIB, SAB/SOB and other common items as per TS complete in all respect. In this BOQ item, mobilization and demobilization for HV test kit is considered for once. In case of more, for reasons not attributable to bidder, same shall be paid extra as per BOQ Item.
5.11	SERVICES- 220kV GIS : 3D MODEL FOR 220KV GIS	LOT	1	Please refer TS.
5.12	SERVICES- 220kV GIS : INSULATION CO-ORDINATION STUDIES FOR GIS SYSTEM	LOT	1	1 Lot means Complete study report as per technical specification, Including VFTO report.
5.13	SERVICES- 220kV GIS : TRAINING FOR GIS AT SITE	DAY	7	Training of ten OWNER's personnel & two BHEL's personnel for a period of at least Seven days at site
5.14	SERVICES- 220kV GIS : TRAINING FOR GIS AT MANUFACTURER WORKS	DAY	7	Training of two OWNER's personnel & two BHEL's personnel for a period of at least Seven days at manufacturer's works

ANNEXURE BOQ_220kV GIS_SERVICE_IOCL PANIPAT
REV No: 02
DATE: 28.08.2024

Sl. No.	Description	Unit	Quantity	Remarks
6.0	**SERVICES- GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES:** (UNIT PRICES OF INDIVIDUAL SERVICES INCLUDED HERE ARE REQUIRED FOR ANY ADDITION/DELETION OF EQUIPMENT AND REPLACEMENT OF DAMAGED ITEMS. VENDOR TO ENSURE THAT THE UNIT PRICES HAVE A LOGICAL RELATIONSHIP WITH PRICES OF ASSEMBLIES IN MAIN ITEMS. QUOTING FOR UNIT PRICES IS MANDATORY AND SHALL BE CONSIDERED FOR			
6.01	SERVICES- 220kV GIS: REF. UNIT PRICE OF GIS INDIVIDUAL ITEM/ EQUIPMENT - SERVICES FOR SUPERVISION OF ERECTION OF GIS	MANDAY	10	Charges for repetition of services - (if required due to reasons not attributed to the bidder) This item will be executed only if repetition of services is required by BHEL.
6.02	SERVICES- 220kV GIS: REF. UNIT PRICE OF GIS INDIVIDUAL ITEM/ EQUIPMENT - SERVICES FOR TESTING & COMMISSIONING OF GIS	MANDAY	10	Charges for repetition of services - (if required due to reasons not attributed to the bidder) This item will be executed only if repetition of services is required by BHEL.
	DEMOBILIZATION AND REMOBILIZATION CHARGES			
6.03	SERVICES- 220kV GIS: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS ERECTION SUPERVISION TEAM	Set	2	THIS BOQ ITEM SHALL BE PAYABLE IF REQUIRED FOR REASONS NOT ATTRIBUTABLE TO BIDDER.
6.04	SERVICES- 220kV GIS: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS TESTING & COMMISSIONING TEAM	Set	2	BOQ ITEM SHALL BE PAYABLE IF REQUIRED FOR REASONS NOT ATTRIBUTE TO BIDDER. HV TESTING IS NOT PART OF THIS ITEM.
6.05	SERVICES- 220kV GIS: DEMOBILIZATION & REMOBILIZATION CHARGES OF HV TEST KIT ALONG WITH OPERATOR	Lot	1	In this BOQ item, mobilization and demobilization chages for HV test kit is considered for second time or more , for reasons not attributable to bidder. HV testing charges shall be paid per bay basis as per main HV testing charge.



Additional Notes:

1. CT VT Parameters/ no. of cores may change as per customer approval during detailed engineering stage.
2. Service continuity requirements shall be as technical specification and latest IEC 62271-203.
3. Bay arrangement may also change as per site requirement as per customer approval during detailed engineering stage.
4. Bay connection arrangement may change as per customer approval during detailed engineering stage.

NOTES

1. THIS SINGLE LINE DIAGRAM IN INDICATIVE AND INTENDED TO HIGHLIGHT MAJOR ELECTRICAL EQUIPMENT. IT IS THE RESPONSIBILITY OF THE DETAIL ENGINEERING CONTRACTOR TO SIZE COMPONENTS AND DEVELOP DETAILED SLD BASED ON BID REQUIREMENT AND APPLICABLE CODES & STANDARDS.
2. ANY OTHER EQUIPMENT AS REQUIRED FOR MEETING FUNCTIONAL AND STATUTORY REQUIREMENT SHALL BE PROVIDED BY DETAIL ENGINEERING CONTRACTOR.
3. THE TERMINATION OF OVERHEAD CONDUCTOR THROUGH TIE-IN POINT OF TRANSMISSION SYSTEM UPTO GANTRY TOWER SHALL BE IN DETAIL ENGINEERING CONTRACTOR'S SCOPE OF WORK INCLUDING STRUCTURAL HARDWARE ETC.
4. WAVE TRAP, CVT, PLCC PANEL, 48V CHARGER, OPCW AND TELEMETRY HARDWARE AT BOTH ENDS (i.e. AT MAH 220kV SWITCHYARD AND AT HVPNL END) SHALL BE SUPPLIED AND INSTALLED BY DETAIL ENGINEERING CONTRACTOR'S.
5. ALL STATUTARY APPROVALS AND APPROVAL OF ALL OUTDOOR SWITCHYARD RELATED DOCUMENTS THROUGH HVPNL LINE GELO, OUTDOOR CT, PT, CVT, METERS, AND WAVETRAP REQUIRED FOR THE GRID INTEGRATION SHALL BE BY DETAIL ENGINEERING CONTRACTOR.
6. 220kV GIS SHALL BE PROVIDED WITH ONLINE TEMPERATURE MONITORING SYSTEM AND PARTIAL DISCHARGE MONITORING SYSTEM.
7. 220kV/66kV TRANSFORMERS SHALL BE PROVIDED WITH ONLINE MOISTURE REMOVAL SYSTEM.
8. FOR 220kV GIS SUBSTATION BUILDING, 2 NOS. 6.6kV/ 0.433kV, TRANSFORMERS SHALL BE CONSIDERED FOR AUXILIARY POWER REQUIREMENT. THESE TRANSFORMERS AND THEIR INCOMER/OUTGOING CABLES/DUCTS SHALL BE IN THE SCOPE OF DETAIL ENGINEERING CONTRACTOR. FOR THESE TRANSFORMERS, 1 NO. 6.6kV FEEDER SHALL BE PROVIDED FROM 6.6kV SWITCHGEAR AT MAH SUBSTATION-2 BY EPCC-01 CONTRACTOR AND OTHER 6.6kV INCOMER FEEDER SHALL BE PROVIDED FROM CPP SUBSTATION-9 BY OWNER DURING DETAIL ENGINEERING.
9. SUPPLY, LAYING, TERMINATION, TESTING & COMMISSIONING OF 6.6kV CABLES FROM 6.6kV SWITCHGEAR AT MAH SUBSTATION-2 TO 1 NO. 6.6/0.433kV AUXILIARY TRANSFORMER IN 220kV SUBSTATION BUILDING INCLUDING CABLE TRENCHES / TRAYS WITH SUPPORTS SHALL BE BY EPCC-01 CONTRACTOR.
10. SUPPLY, LAYING, TERMINATION, TESTING & COMMISSIONING OF 6.6kV CABLES FROM ASSIGNED 6.6kV SWITCHGEAR AT CPP SUBSTATION-9 TO 1 NO. 6.6/0.433kV AUXILIARY TRANSFORMER IN 220kV SUBSTATION BUILDING INCLUDING CABLE TRENCHES / TRAYS WITH SUPPORTS SHALL BE BY EPCC-03 CONTRACTOR.
11. IN ADDITION TO ABOVE MENTIONED AUXILIARY TRANSFORMER, OTHER AUXILIARY FACILITIES IN 220kV GIS SUBSTATION BUILDING SHALL ALSO BE PROVIDED BY DETAIL ENGINEERING CONTRACTOR. ELECTRICAL EQUIPMENT FOR BUILDING FACILITIES SUCH AS 415V PCC, 415V DB, LIGHTING TRANSFORMER, DC BATTERY CHARGER AND BATTERIES, HVAC SYSTEM, ECS SYSTEM AS REQUIRED SHALL BE IN THE SCOPE OF DETAIL ENGINEERING CONTRACTOR.
12. 220kV GIS BUILDING SHALL BE SIZED CONSIDERING FOLLOWING ADDITIONAL REQUIREMENT FOR NCU PROJECT SCOPE OF WORK:
    a. SPACE TO PLACE 33kV GIS.
    b. BAY SPACE FOR 2 NOS. 220kV/66kV TRANSFORMER (STYRENE/OTHER PROJECT) INCLUDING FIREWALLS BETWEEN THE TRANSFORMERS.
    FURTHER INSTALLATION, TESTING, COMMISSIONING AND CIVIL WORKS (FOUNDATION, FIREFIGHTING SYSTEM, TRENCHES, OIL PITS, E-STOP PUSH BUTTONS ETC) FOR TRANSFORMERS SHALL BE BY STYRENE/ OTHER CONTRACTOR.
    c. BAY SPACE FOR 4 NO. 220kV/33kV TRANSFORMER (NCU-II PROJECT) INCLUDING FIREWALLS BETWEEN THE TRANSFORMERS.
    FURTHER INSTALLATION, TESTING, COMMISSIONING AND CIVIL WORKS (FOUNDATION, FIREFIGHTING SYSTEM, TRENCHES, OIL PITS, E-STOP PUSH BUTTONS ETC) FOR PLACING THE NCU TRANSFORMERS SHALL BE BY NCU-II CONTRACTOR.
    d. COMMON BUILDING FACILITIES FOR BOTH MAH AND NCU SUCH AS 6.6/0.433kV, 1250kVA TRANSFORMER, 415V PCC, 415V DB, LIGHTING TRANSFORMER, DC BATTERY CHARGER AND BATTERIES, HVAC SYSTEM, ECS SYSTEM AS REQUIRED SHALL BE IN MAH DETAIL ENGINEERING CONTRACTOR SCOPE OF WORK. INPUT REQUIRED FROM NCU CONTRACTOR SHALL BE COORDINATED DURING DETAIL ENGINEERING STAGE.
13. DESIGN, ENGINEERING & SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF ALL EQUIPMENT INCLUDING CONNECTING POWER & CONTROL CABLES, ROUTING, TERMINATION FOR NCU PROJECT SHALL BE UNDER NCU PHASE-II CONTRACTOR SCOPE OF WORK.
14. SUPPLY, LAYING, TERMINATION, TESTING & COMMISSIONING OF 66kV CABLES FROM THE SECONDARY OF 2 NOS. 220/66kV POWER TRANSFORMERS IN 220kV SUBSTATION BUILDING TO 66kV GIS AT MAH SUBSTATION-1 INCLUDING CABLE TRENCHES / TRAYS WITH SUPPORTS SHALL BE BY EPCC-01 CONTRACTOR.
15. INTEGRATION OF 220kV OVERHEAD LINES FROM POINT OF TAP OFF (ON NEAREST 220kV TRANSMISSION TOWER) TO PNCP 220kV OUTDOOR SWITCHYARD SHALL BY EPCC-03 CONTRACTOR. ALSO, ANY REQUIRED ITEMS/STRUCTURES, AAAC/ACSR CONDUCTORS/BUSBARS, INSULATORS ETC. FOR CONNECTING TO 220kV OUTDOOR SWITCHYARD AND COORDINATION WITH STATE GRID AUTHORITIES (AS APPLICABLE) SHALL BE BY EPCC-03.
16. LOCATION OF 220kV GRID TRANSMISSION LINE TOWER ALONG WITH CONFIGURATION AND OTHER DETAILS SHALL BE PROVIDED DURING DETAIL ENGINEERING.
17. MINIMUM CLEARANCES FOR 220kV SYSTEM :
    a) BETWEEN PHASE : 2100MM
    b) BETWEEN PHASE TO EARTH : 2100MM
    c) SECTIONAL CLEARANCE : 5000MM
17. EPC CONTRACTOR SHALL DEVELOP VARIOUS OPTION OF SYNCHRONIZING INCOMERS, B/C's AND TAKE CONCURRENCE OF HVPNL/OWNER/PMC BEFORE IMPLEMENTATION OF THE SCHEME WITHOUT ANY COST AND TIME IMPLICATION TO THE PMC/OWNER.

REFERENCE

DOC. NO.	TITLE
359755-MDR-121-ELE-21A1-0001 & 0002	KEY SINGLE LINE DIAGRAM-MAH
359755-MDR-000-ELE-800-0001	ELECTRICAL ENGINEERING DESIGN BASIS
359755-MDR-000-ELE-SOW-0003	ELECTRICAL EPCC-03 220kV GIS AND ASSOCIATED WORK
359755-MDR-000-PIP-01-0002	INTEGRATED OVERALL PLOT PLAN-PNCP AND MAH

LEGENDS

M	MOTOR WITH SPACE HEATER	M	MOTOR WITHOUT SPACE HEATER
VFD	VARIABLE FREQUENCY DRIVE		CIRCUIT BREAKER VCB – VACUUM CIRCUIT BREAKER ACB – AIR CIRCUIT BREAKER MCCB – MOULDED CASE CIRCUIT BREAKER MCB – MINIATURE CIRCUIT BREAKER
	SWITCH FUSE UNIT		
	NEUTRAL GROUNDING RESISTOR		POWER TRANSFORMER WITH OLTC
	BUSDUCT		TARIFF METERING CT
	DISTRIBUTION TRANSFORMER (SOLIDLY EARTHED)		LIGHTNING ARRESTER
	WAVE TRAP		CVT
	SURGE ARRESTER		MOTORIZED DISCONNECT SWITCH WITH EARTH SWITCH (MOTORIZED)
	MOTORIZED DISCONNECT SWITCH WITHOUT EARTH SWITCH	HES/ES	MOTORIZED WITH EARTH SWITCH
	MOTORIZED DOUBLE BREAK DISCONNECT SWITCH WITH 2 NOS. EARTH SWITCH (MOTORIZED)		BUSHING

REV NO	DATE	PURPOSE	PREP BY	CHKD BY	APPD BY
0	15-MAY-2024	ISSUED FOR USE	PUN	SAT	SAT

PROJECT

MALEIC ANHYDRIDE PROJECT AT
PANIPAT REFINERY & PETROCHEMICAL COMPLEX

OWNER

INDIAN OIL CORPORATION LIMITED

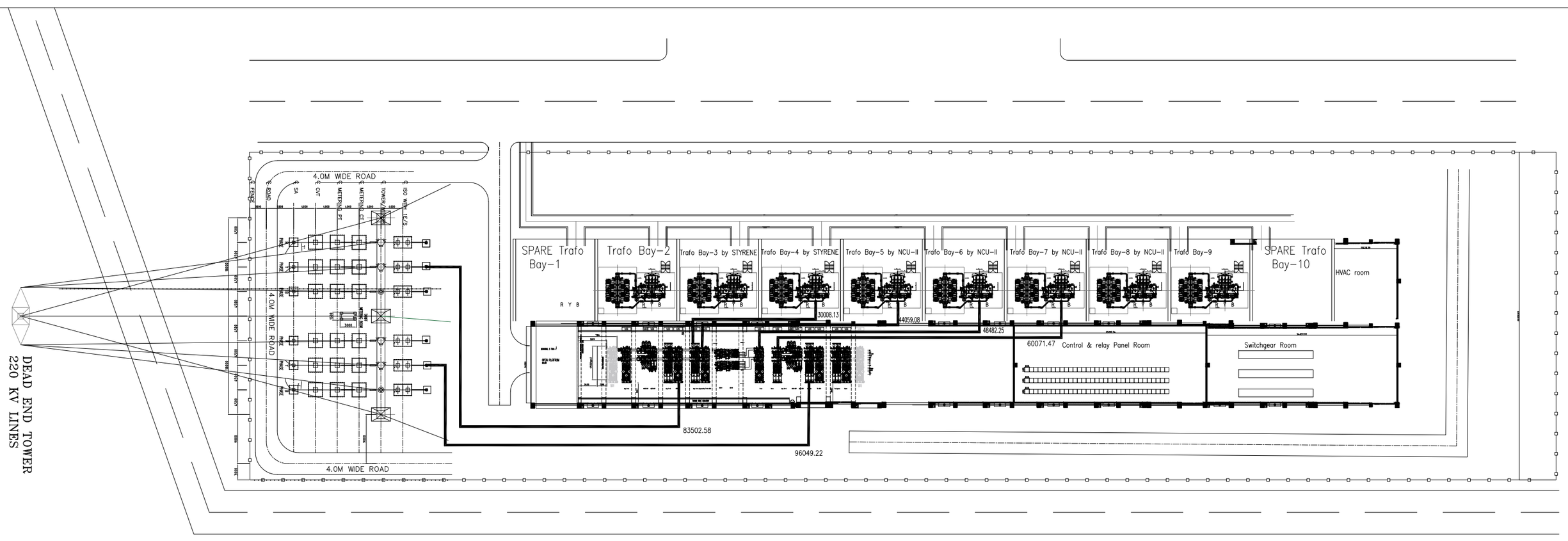
PMC: CB&I INDIA PRIVATE LIMITED

PMC JOB NO.	359755	SDR Code	-

TITLE

OVERALL KEY SINGLE LINE DIAGRAM –
INTEGRATED MAH & PNCP

SCALE : NTS	DWG.NO. 359755-MDR-000-ELE-21A1-0003	1/1	REV. 0


DEAD END TOWER
220 KV LINES
4.0M WIDE ROAD
4.0M WIDE ROAD
4.0M WIDE ROAD
FENCE
ROAD
SA
CVT
METERING PT
METERING CT
TOWER/MONOPOLE
ISO WITH E.E.S.
SPARE Trafo Bay-1
Trafo Bay-2
Trafo Bay-3 by STYRENE
Trafo Bay-4 by STYRENE
Trafo Bay-5 by NCU-II
Trafo Bay-6 by NCU-II
Trafo Bay-7 by NCU-II
Trafo Bay-8 by NCU-II
Trafo Bay-9
SPARE Trafo Bay-10
HVAC room
R Y B
30008.13
14059.08
48482.25
60071.47
Control & relay Panel Room
Switchgear Room
83502.58
96049.22

Validate | Print | Help

Item Wise BoQ

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: IOCL Panipat-220kV GIS S/stn Tender

NIT/Enquiry No: NIT No. 84687_Enquiry No. 61Q2500228 Dtd: 16-08-2024

Name of the Bidder/ Bidding Firm / Company :	

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	Quoted Currency in INR / Other Currency	Unit RATE In Figures To be entered by the Bidder in Rs. P	GST (in Percentage)	GST Amount (Unit Rate*Quantity* GST) Rs. P	Unit Freight & Insurance Charges in Rs. P	GST (in Percentage)	GST Amount on F&I (Unit Rate*Quantity*GST) Rs. P	HSN / SAC Code	TOTAL Ex-Works + F & I AMOUNT excluding GST in Rs. P	TOTAL Ex-Works + F & I AMOUNT including GST in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	12	13	14	15	16	20	21	51	53	54	55
1.01	GIS SUPPLY: 220KV, 2000A, 50kA, SF6 GIS BUS BAR MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	item1	4	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.02	GIS SUPPLY: 220KV, 50kA, SF6 BUS PT/ VT BAY MODULE WITH BUS EARTH SWITCH (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	item2	4	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.03	GIS BAY SUPPLY: 220kV, 2000A, 50 kA, SF6 INCOMING GIS LINE FEEDER BAY MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	item3	2	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.04	GIS BAY SUPPLY: 220kV, 2000A, 50kA, SF6 GIS BUS COUPLER BAY MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	item4	2	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.05	GIS BAY SUPPLY: 220kV, 2000A, 50kA, SF6 GIS BUS SECTIONALISER BAY MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	item5	2	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.06	GIS BAY SUPPLY: 220kV, 2000A, 50 kA, SF6 OUTGOING GIS TRANSFORMER FEEDER BAY MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	item6	8	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.07	GIS BAY SUPPLY: 220kV, 2000A, 50kA, SF6 OUTGOING GIS SPARE FEEDER BAY (FULLY EQUIPPED) MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS) AS PER TS	item7	2	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.08	GIS BAY SUPPLY: ONLINE TEMPERATURE MONITORING & PARTIAL DISCHARGE SYSTEM	item8	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.09	GIS SUPPLY: 220KV, CONTROLLED SWITCHING DEVICE (CSD) FOR 220KV, 3- PH CIRCUIT BREAKER	item9	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.10	SUPPLY- GIS : 220KV, 2000A, 1 PHASE GAS INSULATED BUS DUCT (INCLUDING SF6 GAS, STRUCTURE WITH HARDWARES AND EARTHING MATERIALS)	item10	1200	MTRS	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.11	GIS SUPPLY: 220KV, 2000A, 1 PHASE SF6 TO AIR BUSHING (POLYMER) (INCLUDING SF6 GAS, STRUCTURE WITH HARDWARES AND EARTHING MATERIALS)	item11	6	NO	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.12	GIS SUPPLY: 390KV, 1 PHASE SURGE ARRESTER WITH SURGE COUNTER (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS)	item12	42	NO	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.13	GIS SUPPLY: 220KV, 2000A, 1 PHASE SF6 TO OIL BUSHING (POLYMER) (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS)	item13	12	NO	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.14	GIS SUPPLY: 220KV, 2000A, 1 PHASE CABLE CONNECTION MODULE (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS)	item14	18	NO	INR			0.00			0.00		0.000	0.000	INR Zero Only

Validate | Print | Help

Item Wise BoQ

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: IOCL Panipat-220kV GIS S/stn Tender

NIT/Enquiry No: NIT No. 84687_Enquiry No. 61Q2500228 Dtd: 16-08-2024

Name of the Bidder/ Bidding Firm / Company :	

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	Quoted Currency in INR / Other Currency	Unit RATE In Figures To be entered by the Bidder in Rs. P	GST (in Percentage)	GST Amount (Unit Rate*Quantity* GST) Rs. P	Unit Freight & Insurance Charges in Rs. P	GST (in Percentage)	GST Amount on F&I (Unit Rate*Quantity*GST) Rs. P	HSN / SAC Code	TOTAL Ex-Works + F & I AMOUNT excluding GST in Rs. P	TOTAL Ex-Works + F & I AMOUNT including GST in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	12	13	14	15	16	20	21	51	53	54	55
1.15	GIS SUPPLY: 220KV, 1 PHASE VOLTAGE TRASNFORMER (INCLUDING SF6 GAS, STRUCTURE, HARDWARES & EARTHING MATERIALS)	item15	1	NO	INR			0.00			0.00		0.000	0.000	INR Zero Only
1.16	GIS SUPPLY: LOCAL CONTROL CUBICLES	item16	16	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
2.01	GIS SUPPLY: SF6 GAS LEAKAGE DETECTOR	item17	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
2.02	GIS SUPPLY: SF6 GAS FILLING AND EVACUATING PLANT	item18	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
2.03	GIS SUPPLY: SF6 GAS ANALYSER	item19	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
2.04	GIS SUPPLY: PORTABLE PARTIAL DISCHARGE MEASUREMENT SET	item20	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
2.05	GIS SUPPLY: SF6 TOPPING SYSTEM	item21	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
2.06	GIS SUPPLY: SF6 GAS HANDLING PLANT/ SERVICE CART	item22	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
2.07	GIS SUPPLY: PORTABLE LADDER WITH ADJUSTABLE HEIGHT	item23	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
3.01	GIS SPARES: NUMERICAL RELAYS	item24	2	NO.	INR			0.00			0.00		0.000	0.000	INR Zero Only
3.02	GIS SPARES: CT/ PT/ CONMTROL TRANSFORMER (ALL TYPES AND RATINGS)	item25	3	NO.	INR			0.00			0.00		0.000	0.000	INR Zero Only
3.03	GIS SPARES: POWER & CONTROL FUSES	item26	10	NO.	INR			0.00			0.00		0.000	0.000	INR Zero Only
3.04	GIS SPARES: SF6 GAS LEAKAGE DETECTOR	item27	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
3.05	GIS SPARES: DIGITAL MULTIFUNCTION METERS	item28	1	NO.	INR			0.00			0.00		0.000	0.000	INR Zero Only

Validate | Print | Help

Item Wise BoQ

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: IOCL Panipat-220kV GIS S/stn Tender

NIT/Enquiry No: NIT No. 84687_Enquiry No. 61Q2500228 Dtd: 16-08-2024

Name of the Bidder/ Bidding Firm / Company :	

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	Quoted Currency in INR / Other Currency	Unit RATE In Figures To be entered by the Bidder in Rs. P	GST (in Percentage)	GST Amount (Unit Rate*Quantity* GST) Rs. P	Unit Freight & Insurance Charges in Rs. P	GST (in Percentage)	GST Amount on F&I (Unit Rate*Quantity*GST) Rs. P	HSN / SAC Code	TOTAL Ex-Works + F & I AMOUNT excluding GST in Rs. P	TOTAL Ex-Works + F & I AMOUNT including GST in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	12	13	14	15	16	20	21	51	53	54	55
3.06	GIS SPARES: INDICATING LAMPS	item29	5	NO.	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.01	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, OPERATING MECHANISM FOR CIRCUIT BREAKER COMPLETE IN ALL RESPECT	item30	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.02	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, OPERATING MECHANISM FOR DISCONNECTOR COMPLETE IN ALL RESPECT	item31	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.03	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, OPERATING MECHANISM FOR MAINTENANCE EARTHING SWITCH COMPLETE IN ALL RESPECT	item32	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.04	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, OPERATING MECHANISM FOR FAST ACTING/ HIGH SPEED GROUNDING SWITCH COMPLETE IN ALL RESPECT	item33	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.05	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, MAINTENANCE EARTHING SWITCH COMPLETE IN ALL RESPECT	item34	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.06	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, FAST ACTING/ HIGH SPEED GROUNDING SWITCH COMPLETE IN ALL RESPECT	item35	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.07	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, SINGLE PHASE BUS BAR	item36	1	Mtrs	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.08	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, GIS METALLIC ENCLOSURE	item37	50	Kgs	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.09	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, EXPANSION JOINTS	item38	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.1	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, FLEXIBLE CONNECTIONS	item39	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only

Validate | Print | Help

Item Wise BoQ

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: IOCL Panipat-220kV GIS S/stn Tender

NIT/Enquiry No: NIT No. 84687_Enquiry No. 61Q2500228 Dtd: 16-08-2024

Name of the Bidder/ Bidding Firm / Company :	

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	Quoted Currency in INR / Other Currency	Unit RATE In Figures To be entered by the Bidder in Rs. P	GST (in Percentage)	GST Amount (Unit Rate*Quantity* GST) Rs. P	Unit Freight & Insurance Charges in Rs. P	GST (in Percentage)	GST Amount on F&I (Unit Rate*Quantity*GST) Rs. P	HSN / SAC Code	TOTAL Ex-Works + F & I AMOUNT excluding GST in Rs. P	TOTAL Ex-Works + F & I AMOUNT including GST in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	12	13	14	15	16	20	21	51	53	54	55
4.11	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, BARRIER INSULATOR	item40	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.12	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, NON-BARRIER INSULATOR	item41	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.13	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, GAS SEALS	item42	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.14	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, GAS DENSITY MONITOR SWITCH	item43	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.15	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, GAS PRESSURE SWITCH	item44	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.16	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, TEE BEND	item45	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.17	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, ANGLE BEND	item46	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.18	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, L-BEND	item47	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
4.19	SPARES- GIS: REFERENCE UNIT PRICE FOR ADDITION/ DELETION OF SUPPLY ITEMS: 220KV, VOLATGE DETECTORS	item48	1	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.01	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF GIS	item49	16	Bays	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.02	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1-PHASE GAS INSULATED BUS DUCT	item50	1200	MTR	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.03	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE SF6 TO AIR BUSHING	item51	6	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.04	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE SF6 TO OIL BUSHING (POLYMER)	item52	12	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.05	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE CABLE CONNECTION MODULE	item53	18	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.06	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE SURGE ARRESTER WITH SURGE COUNTER	item54	42	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only

Validate | Print | Help

Item Wise BoQ

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: IOCL Panipat-220kV GIS S/stn Tender

NIT/Enquiry No: NIT No. 84687_Enquiry No. 61Q2500228 Dtd: 16-08-2024

Name of the Bidder/ Bidding Firm / Company :	

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	Quoted Currency in INR / Other Currency	Unit RATE In Figures To be entered by the Bidder in Rs. P	GST (in Percentage)	GST Amount (Unit Rate*Quantity* GST) Rs. P	Unit Freight & Insurance Charges in Rs. P	GST (in Percentage)	GST Amount on F&I (Unit Rate*Quantity*GST) Rs. P	HSN / SAC Code	TOTAL Ex-Works + F & I AMOUNT excluding GST in Rs. P	TOTAL Ex-Works + F & I AMOUNT including GST in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	12	13	14	15	16	20	21	51	53	54	55
5.07	SERVICES- 220kV GIS: SUPERVISION OF ERECTION OF 1 PHASE VOLTAGE TRASNFORMER	item55	1	SET	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.08	SERVICES- 220kV GIS: TESTING & COMMISSIONING OF GIS	item56	16	Bays	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.09	SERVICES- 220kV GIS : TESTING & COMMISSIONING OF GAS INSULATED BUS DUCT	item57	1200	MTR	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.10	SERVICES- 220kV GIS : FINAL SUCCESSFUL HV/ POWER FREQUENCY TESTING OF GIS INCLUDING ARRANGING OF HV TEST KIT ALONG WITH OPERATOR	item58	16	Bays	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.11	SERVICES- 220kV GIS : 3D MODEL FOR 220KV GIS	item59	1	LOT	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.12	SERVICES- 220kV GIS : INSULATION CO-ORDINATION STUDIES FOR GIS SYSTEM	item60	1	LOT	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.13	SERVICES- 220kV GIS : TRAINING FOR GIS AT SITE	item61	7	DAY	INR			0.00			0.00		0.000	0.000	INR Zero Only
5.14	SERVICES- 220kV GIS : TRAINING FOR GIS AT MANUFACTURER WORKS	item62	7	DAY	INR			0.00			0.00		0.000	0.000	INR Zero Only
6.01	SERVICES- 220KV GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES - SERVICES FOR SUPERVISION OF ERECTION OF GIS	item63	10	MANDAY	INR			0.00			0.00		0.000	0.000	INR Zero Only
6.02	SERVICES- 220KV GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES - SERVICES FOR TESTING & COMMISSIONING OF GIS	item64	10	MANDAY	INR			0.00			0.00		0.000	0.000	INR Zero Only
6.03	SERVICES- 220KV GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS ERECTION SUPERVISION TEAM	item65	2	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only
6.04	SERVICES- 220KV GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS TESTING & COMMISSIONING TEAM	item66	2	Set	INR			0.00			0.00		0.000	0.000	INR Zero Only

Validate | Print | Help

Item Wise BoQ

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: IOCL Panipat-220kV GIS S/stn Tender

NIT/Enquiry No: NIT No. 84687_Enquiry No. 61Q2500228 Dtd: 16-08-2024

Name of the Bidder/ Bidding Firm / Company :	

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	Quoted Currency in INR / Other Currency	Unit RATE In Figures To be entered by the Bidder in Rs. P	GST (in Percentage)	GST Amount (Unit Rate*Quantity* GST) Rs. P	Unit Freight & Insurance Charges in Rs. P	GST (in Percentage)	GST Amount on F&I (Unit Rate*Quantity*GST) Rs. P	HSN / SAC Code	TOTAL Ex-Works + F & I AMOUNT excluding GST in Rs. P	TOTAL Ex-Works + F & I AMOUNT including GST in Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	12	13	14	15	16	20	21	51	53	54	55
6.05	SERVICES- 220KV GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: DEMOBILIZATION & REMOBILIZATION CHARGES OF HV TEST KIT ALONG WITH OPERATOR	item67	1	Lot	INR			0.00			0.00		0.000	0.000	INR Zero Only
Total in Figures													0.000	0.000	Zero Only
oted Rate in Words		**INR Zero Only**													