



# 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

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## **CORRIGENDUM - 04 TO NIT NO-81631**

**Dated 07.05.2024**

**Subject: Corrigendum-04 to Tender enquiry for Pre Bid Tie up with the GIS OEM for Supply & Services of 400KV GIS for Powergrid's SS-52T (JAMNAGAR and JAM KHAMBHALIYA) Tender/ Project.**

Project : Powergrid's SS-52T (JAMNAGAR and JAM KHAMBHALIYA)  
Equipment / Item : Supply & Services of 400kV GIS  
Enquiry No/Date : Enquiry No. 61G2500030 dated 19-04-2024  
BHEL NIT NO : 81631  
**Original Tender due date : 29.04.2024**

This Corrigendum is issued by BHEL TBG against above mentioned NIT/ enquiry for issuance of Technical corrigendum (enclosed).

All bids received till 11:00 Hrs on 08-05-24 shall be opened on 11:30 Hrs on same day through Tender Box.

Bidder to submit offer directly to **TENDER BOX 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)

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\_35102\_1**.

Thanking you

-----Sd/-----

Gaurav Agarwal  
BHEL TBG, NOIDA

Ref. No. Technical Corrigendum-01

Project: Pre Bid Tie up for, 400kV GIS Pkg-SS 52T for a). Extension of 400kV Jamnagar (GIS) S/s & b). Extn. of 400kV Jam Khambhaliya GIS S/s associated with "Network Expansion scheme in Gujrat for drawl of about 3.6 GW load under Phase-I in Jamnagar area" through TBCB route; Spec. No: CC/T/W-GIS/DOM/A06/24/03314

Date: 06.05.2024

Sl. No.	Volume/ Section/ Clause	Volume/ Section/ Clause as Existing	Volume/ Section/ Clause as Amended/ Added in Technical Corrigendum-01
1	Section 1.3	BOQ_Jamnagar Rev 00, & BOQ_Jam Khambhaliya Extension Rev00	BOQ_Jamnagar Rev 01, & BOQ_Jam Khambhaliya Extension Rev 01
2	Section 1.5	Annexure- Section Project REV00	Annexure- Section Project REV01 is revised with Annexure II (Break-up of Mandatory Spares)

Note:

1. The changes are marked/ highlighted in yellow.
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.

# BOQ\_Jamnagar Rev 01

ANNEXURE: BOQ\_400kV GIS\_SUPPLY\_JAMNAGAR

REV No: 01

DATE: 06.05.2024

Sl. No.	Item Description	Unit	Qty.	Remarks
<b>1</b>	<b>SUPPLY- GIS : 400KV, 63KA FOR 1S, GAS INSULATED SWITCHGEAR (GIS) AS PER TS</b>			
1.01	GIS SUPPLY: 420kV, 4000 A, 63 kA, SF6 GIS Bus bar module as per Section-Project, Technical specification	SET	2	
1.02	GIS SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS Auxiliary Bus module for Spare Transformer as per Section- Project, Technical specification	SET	1	
1.03	GIS SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS AUXILIARY BUS MODULE FOR SPARE COUPLING TRANSFORMER AS PER SECTION- PROJECT, TECHNICAL SPECIFICATION	SET	1	
1.04	GIS BAY SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS Bus Reactor bay module as per Section- Project, Technical specification	SET	2	
1.05	GIS BAY SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS Tie bay module (without PIR) as per Section- Project, Technical specification	SET	4	
1.06	GIS BAY SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS ICT feeder bay module as per Section-Project, Technical specification	SET	1	
1.07	GIS BAY SUPPLY: 420 kV, 3150 A, 63 kA, SF6 GIS Line feeder bay module (without PIR) as per Section- Project, Technical specification	SET	6	
1.08	GIS BAY SUPPLY: 420 kV, 3150 A, 63 kA, SF6 GIS Line feeder bay module (with PIR) as per Section- Project, Technical specification	SET	4	
1.09	GIS BAY SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS Tie bay module (with PIR) as per Section-Project, Technical specification	SET	4	
1.10	GIS BAY SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS SWITCHABLE LINE REACTOR BAY MODULE AS PER SECTION-PROJECT, TECHNICAL SPECIFICATION	SET	4	
1.11	GIS BAY SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS ICT FEEDER BAY MODULE FOR IV SIDE CONNECTION WITH 765KV ICT AS PER SECTION- PROJECT, TECHNICAL SPECIFICATION	SET	2	
1.12	GIS BAY SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS COUPLING TRANSFORMER FEEDER BAY MODULE AS PER SECTION- PROJECT, TECHNICAL SPECIFICATION	SET	1	
1.13	GIS SUPPLY: 420KV, 3150A, 63KA SF6 TO AIR BUSHING including support structure	SET	59	
1.14	GIS SUPPLY: Controlled Switching Device for 420 kV, 3-ph Circuit Breaker	SET	14	1 SET= 1 Nos. of each type and rating
1.15	GIS SUPPLY: 420KV, 3000A, 63KA, SINGLE PHASE, SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONGWITH ASSOCIATED SUPPORT STRUCTURE, ETC. AS PER TECHNICAL SPECIFICATION	M	6300	
1.16	GIS SUPPLY: Local Control Cubicles (LCC)	Set	28	INCLUDING POWER, CONTROL & INSTRUMENTATION CABLE AS APPLICABLE.
<b>2</b>	<b>SUPPLY- GIS : SPECIAL TOOLS AND TESTING &amp; MAINTENANCE INSTRUMENTS AS PER TS</b>			
	NIL			
<b>3</b>	<b>SPARES- GIS : 400KV, 63KA FOR 1S, GAS INSULATED SWITCHGEAR (GIS) AS PER TS</b>			
3.01	GIS SPARES: 400KV GIS-SF6 GAS PRESSURE RELIEF DEVICE ASSEMBLY OF EACH TYPE	SET	2	1 SET= 1 Nos. of each type and rating
3.02	GIS SPARES: SF6 PRESSURE GAUGE CUM SWITCH/ DENSITY MONITORS AND PRESSURE SWITCH AS APPLICABLE, OF EACH TYPE-400KV GIS	SET	3	
3.03	GIS SPARES: COUPLING DEVICE FOR PRESSURE GAUGE CUM SWITCH FOR CONNECTING GAS HANDLING PLANT OF EACH TYPE-400KV GIS	SET	2	
3.04	GIS SPARES: RUBBER GASKETS, "O" RINGS AND SEALS FOR SF6 GAS FOR GISENCLOSURE OF EACH TYPE-400KV GIS	SET	3	
3.05	GIS SPARES: 400KV GIS-MOLECULAR FILTER FOR SF6 GAS WITH FILTER BAGS (5 % OF TOTAL WEIGHT)	SET	1	
3.06	GIS SPARES: CONTROL VALVES FOR SF6 GAS OF EACH TYPE-400KV GIS	SET	3	

Sl. No.	Item Description	Unit	Qty.	Remarks
3.07	GIS SPARES: 400KV GIS-SF6 GAS (5 % OF TOTAL GAS QUANTITY)	LOT	1	
3.08	GIS SPARES: LOCKING DEVICE TO KEEP THE DIS-CONNECTORS (ISOLATORS) AND EARTHING/ FAST EARTHING SWITCHES IN CLOSE OR OPEN POSITION IN CASE OF REMOVAL OF THE DRIVING MECHANISM-400KV GIS	SET	3	
3.09	GIS SPARES: UHF PD SENSORS OF EACH TYPE ALONG WITH BNC CONNECTOR FOR 420KV GIS	SET	5	1 SET= 1 number of each type and rating
3.10	GIS SPARES: 400KV GIS-SUPPORT INSULATORS (GAS THROUGH) OF EACH TYPE (COMPLETE WITH METAL RING ETC.) ALONG WITH ASSOCIATED CONTACTS AND SHIELDS	SET	5	1 SET= 1 number of each type and rating
3.11	GIS SPARES: 400KV GIS-GAS BARRIERS OF EACH TYPE (COMPLETE WITH METAL RING ETC.) ALONG WITH ASSOCIATED CONTACTS AND SHIELDS	SET	5	1 SET= 1 number of each type and rating
3.12	GIS SPARES: 400KV GIS- 3150A SF6 TO AIR BUSHING COMPLETE IN ALL RESPECT	SET	1	1 SET= 1 number of each type and rating
3.13	GIS SPARES: LCC SPARES - AUX. RELAYS, CONTACTORS,PUSH BUTTONS, SWITCHES, LAMPS, ANNUNCIATION WINDOWS, MCB, FUSES, TIMERS, TERMINAL BLOCKS ETC. OF EACH TYPE & RATING- 400kv GIS	SET	2	
3.14	GIS SPARES: 400KV GIS-ONE POLE OF 3150A CIRCUIT BREAKER WITHOUT PIR WITH INTERRUPTER, MAIN CIRCUIT, ENCLOSURE AND OPERATING MECHANISM COMPLETE IN ALL RESPECT	SET	1	
3.15	GIS SPARES: 400KV GIS-ONE POLE OF 3150A CIRCUIT BREAKER WITH PIR WITH INTERRUPTER, MAIN CIRCUIT, ENCLOSURE AND OPERATING MECHANISM COMPLETE IN ALL RESPECT	SET	1	
3.16	GIS SPARES: Trip coil assembly with resistor for 420kv GIS Circuit Breaker (as applicable)	SET	3	
3.17	GIS SPARES: Closing coil assembly with resistor for 420kv GIS Circuit Breaker (as applicable)	SET	3	
3.18	GIS SPARES: RELAYS, POWER CONTACTORS, PUSH BUTTONS, TIMERS & MCBS ETC. (AS APPLICABLE) OF EACH TYPE FOR 400KV GIS CIRCUIT BREAKER	SET	1	
3.19	GIS SPARES: Auxiliary switch assembly of each type for 420kv GIS Circuit Breaker	SET	3	
3.20	GIS SPARES: 400KV GIS CIRCUIT BREAKER-OPERATION COUNTER	SET	3	1 SET= 1 number of each type and rating
3.21	GIS SPARES: 400KV GIS CIRCUIT BREAKER-HYDRAULIC OPERATING MECHANISM WITH DRIVE MOTOR (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	SET	1	
3.22	GIS SPARES: HYDRAULIC FILTER OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	SET	1	
3.23	GIS SPARES: 400KV GIS CIRCUIT BREAKER- HOSE PIPE OF EACH TYPE (AS APPLICABLE) (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	SET	1	
3.24	GIS SPARES: 400KV GIS CIRCUIT BREAKER - N2 ACCUMULATOR (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	SET	1	
3.25	GIS SPARES: VALVES OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	SET	1	
3.26	GIS SPARES: PIPE LENGTH (COPPER & STEEL) OF EACH SIZE & TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	SET	1	
3.27	GIS SPARES: PRESSURE SWITCHES OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	SET	1	
3.28	GIS SPARES: PRESSURE GAUGE WITH COUPLING DEVICE OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	SET	1	
3.29	GIS SPARES: 400KV GIS CIRCUIT BREAKER-HYDRAULIC OIL (5% OF TOTAL OIL QUANTITY) (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	SET	1	
3.30	GIS SPARES: PRESSURE RELIEF DEVICE OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM,IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	SET	1	
3.31	GIS SPARES: 400KV GIS CIRCUIT BREAKER-COMPLETE SPRING OPERATING MECHANISM INCLUDING CHARGING MECHANISM ETC. (FOR SPRING OPERATED MECHANISM, IF APPLICABLE)	SET	1	
3.32	GIS SPARES: 400KV GIS CIRCUIT BREAKER- COMPLETE HYDRAULIC-SPRING OPERATING MECHANISM INCLUDING CHARGING MECHANISM ETC. (FOR HYDRAULIC-SPRING OPERATED MECHANISM, IF APPLICABLE)	SET	1	

Sl. No.	Item Description	Unit	Qty.	Remarks
3.33	GIS SPARES: PRESSURE SWITCHES OF EACH TYPE FOR 420KV GIS CIRCUIT BREAKER (For Hydraulic-Spring Operated Mechanism, if applicable)	SET	1	
3.34	GIS SPARES: PRESSURE GAUGE WITH COUPLING DEVICE OF EACH TYPE (FOR HYDRAULIC-SPRING OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREAKER	SET	1	
3.35	GIS SPARES: 400KV GIS- Single phase of 3150A Disconnecter switch including main circuit, enclosure, driving mechanism and support insulator etc., complete in all respect	SET	4	<p>Note 1- The contractor shall supply spare for disconnecter switch to ensure one to one replacement of all disconnecter switch supplied as main equipment without any requirement of modification in fittings at site to cover all different types of disconnecter switch supplied. In case, quantity of supplied dis-connector switch types (for one to one replacement) are more than the quantity mentioned in BPS for spare, the contractor shall supply these additional types of disconnecter switch without any additional price implication to POWERGRID and quantities of these additional type of disconnecter switch are deemed to be included in the quantities mentioned in BPS for spare disconnecter.</p> <p>Note 2 - In case, Dis-connector Switch (DS) &amp; Earth Switch (ES) is provided in a same enclosure with common operating mechanism, then the module comprising of Dis-connector &amp; Earth switch in single enclosure with common operating mechanism is to be provided under the head of spare Dis-connector only.</p> <p>Note 3- In case, Dis-connector Switch (DS) &amp; Earth Switch (ES) is provided in a same enclosure with separate operating mechanism, then the module comprising of Dis-connector &amp; Earth switch in single enclosure with separate operating mechanism is to be provided under the head of spare Dis-connector only.</p> <p>1 SET= 1 number of each type and rating</p>
3.36	400KV GIS- SINGLE PHASE MAINTENANCE EARTHING SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	SET	2	<p>NOTE 1 - IN CASE, DIS-CONNECTOR SWITCH (DS) &amp; EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH COMMON OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR &amp; EARTH SWITCH IN SINGLE ENCLOSURE WITH COMMON OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY.</p> <p>NOTE 2 - IN CASE, DIS-CONNECTOR SWITCH (DS) &amp; EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH SEPARATE OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR &amp; EARTH SWITCH IN SINGLE ENCLOSURE WITH SEPARATE OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY.</p> <p>1 SET= 1 number of each type and rating</p>
3.37	GIS SPARES: 400KV GIS - SINGLE PHASE FAST EARTHING SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	SET	2	<p>NOTE 1 - IN CASE, DIS-CONNECTOR SWITCH (DS) &amp; EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH COMMON OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR &amp; EARTH SWITCH IN SINGLE ENCLOSURE WITH COMMON OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY.</p> <p>NOTE 2 - IN CASE, DIS-CONNECTOR SWITCH (DS) &amp; EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH SEPARATE OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR &amp; EARTH SWITCH IN SINGLE ENCLOSURE WITH SEPARATE OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY.</p> <p>1 SET= 1 number of each type and rating</p>
3.38	GIS SPARES: OPEN/CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS DISCONNECTOR SWITCH	SET	1	
3.39	GIS SPARES: OPEN/CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS MAINTENANCE EARTH SWITCH	SET	1	

Sl. No.	Item Description	Unit	Qty.	Remarks
3.40	GIS SPARES: OPEN/CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS FAST EARTHING SWITCH	SET	1	
3.41	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR DISCONNECTOR- 400KV GIS	SET	2	
3.42	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR MAINTENANCE EARTHING SWITCH- 400KV GIS	SET	2	
3.43	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR FASTEARTHING SWITCH (IF APPLICABLE)-400KV GIS	SET	2	
3.44	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS DISCONNECTOR SWITCH	SET	1	
3.45	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS MAINTENANCE EARTH SWITCH	SET	1	
3.46	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS FAST EARTHING SWITCH	SET	1	
3.47	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS DISCONNECTOR SWITCH	SET	1	1 SET= 1 number of each type and rating
3.48	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS MAINTENANCE EARTH SWITCH	SET	1	1 SET= 1 number of each type and rating
3.49	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS FAST EARTHING SWITCH	SET	1	1 SET= 1 number of each type and rating
3.50	GIS SPARES: 400KV GIS- SINGLE PHASE OF CURRENT TRANSFORMER (3 CORES, TYPE-CTA) WITH ASSOCIATED ENCLOSURE AND PRIMARY CONDUCTOR COMPLETE IN ALL RESPECT	SET	1	1 SET= 1 number of each type and rating
3.51	GIS SPARES: 400KV GIS- SINGLE PHASE OF CURRENT TRANSFORMER (2 CORES, TYPE-CTB) WITH ASSOCIATED ENCLOSURE AND PRIMARY CONDUCTOR COMPLETE IN ALL RESPECT	SET	1	1 SET= 1 number of each type and rating
3.52	GIS SPARES: 400KV GIS- SINGLE PHASE VT WITH ASSOCIATED ENCLOSURE COMPLETE IN ALL RESPECT	SET	1	1 SET= 1 number of each type and rating
3.53	GIS SPARES: Controlled Switching Device for 420 kV, 3-ph Circuit Breaker	SET	1	1 SET= 1 Nos. of each type and rating

4	SPARES- GIS : <b>REFERENCE UNIT PRICE FOR ADDITION / DELETION</b> OF SUPPLY ITEMS (Unit Prices of Individual Equipment included here or in mandatory 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	SPARES: 400KV GIS- GIS METALLIC ENCLOSURE	KG	50	
4.02	SPARES: 400KV GIS- EXPANSION BELLOWS/ JOINTS	SET	1	1 SET= For Single Phase of any type and any rating.
4.03	SPARES: 400KV GIS- TEE BEND	SET	1	1 SET= For Single Phase of any type and any rating.
4.04	SPARES: 400KV GIS- L BEND	SET	1	1 SET= For Single Phase of any type and any rating.

Sl. No.	Description	Unit	Quantity	Remarks
5	SERVICES- GIS : 400KV, 63KA FOR IS, GAS INSULATED SWITCHGEAR (GIS) AS PER TS			
5.01	SERVICES- 400kV GIS: SUPERVISION OF ERECTION OF GIS	Bays	28	Supervision of erection of GIS with main bus, complete as per TS in all respect including LCC and its accessories (including CSD). It also includes verification of materials for proper storage at site for final storage. Earthing, SF6 Gas Filling works, Internal Cabling from GIS to LCC, including Structure Works are covered under this item. GIS Bus Duct & SF6 to Air Bushing (SAB) are not covered in this BOQ item.
5.02	SERVICES- 400kV GIS: SUPERVISION OF ERECTION OF GAS INSULATED BUS DUCT	MTR	6300	Supervision of erection of GIB complete as per TS in all respect. GIB outside the GIS Hall wall shall be considered for mode of measurement. Earthing, SF6 Gas Filling works, Internal Cabling from GIS to LCC, including Structure Works are covered under this item. Inner side GIB / Aux Bus Module etc are to be considered as part of respective GIS Assembly and cost of the same shall be deemed inclusive.
5.03	SERVICES- 400kV GIS: SUPERVISION OF ERECTION OF SF6 TO AIR BUSHING	SET	59	Earthing, SF6 Gas Filling works, Internal Cabling from GIS to LCC, including Structure Works are covered under this item.
5.04	SERVICES- 400kV GIS: TESTING & COMMISSIONING OF GIS	Bays	28	Testing and commissioning of complete GIS system including main bus, LCC and associated system (including CSD) 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.
5.05	SERVICES- 400kV GIS : TESTING & COMMISSIONING OF GAS INSULATED BUS DUCT	MTR	6300	GIB outside the GIS Hall wall shall be considered for mode of measurement. Inner side GIB / Aux Bus Module e.t.c. are to be considered as part of respective GIS Assembly and cost of the same shall be deemed inclusive. 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.
5.06	SERVICES- 400kV GIS : TESTING & COMMISSIONING OF SF6 TO AIR BUSHING	SET	59	
5.07	SERVICES- 400kV GIS : FINAL SUCCESSFUL HV/ POWER FREQUENCY TESTING OF GIS INCLUDING ARRANGING OF HV TEST KIT ALONG WITH OPERATOR	Bays	28	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 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.
5.08	SERVICES- 400kV GIS : INSULATION CO-ORDINATION STUDIES FOR GIS SYSTEM	LOT	1	1 Lot means Complete study report as per technical specification, Including VFTO report.
5.09	SERVICES- 400kV GIS : TRAINING FOR GIS AT SITE	DAY	2	
5.10	SERVICES- 400kV GIS : TRAINING FOR GIS AT MANUFACTURER WORKS	DAY	2	

SI. No.	Description	Unit	Quantity	Remarks
6	SERVICES- GIS : <b>REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES:</b> (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 EVALUATION)			
6.01	SERVICES- 400kV GIS: REF. UNIT PRICE OF GIS INDIVIDUAL ITEM/ EQUIPMENT - <b>SERVICES FOR SUPERVISION OF ERECTION OF GIS</b>	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- 400kV GIS: REF. UNIT PRICE OF GIS INDIVIDUAL ITEM/ EQUIPMENT - <b>SERVICES FOR TESTING &amp; COMMISSIONING OF GIS</b>	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.
<b>DEMOBILIZATION AND REMOBILIZATION CHARGES</b>				
6.03	SERVICES- 400kV GIS: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS <b>ERECTION SUPERVISION TEAM</b>	Set	2	THIS BOQ ITEM SHALL BE EXECUTED IF REQUIRED FOR REASONS NOT ATTRIBUTABLE TO BIDDER.
6.04	SERVICES- 400kV GIS: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS <b>TESTING &amp; COMMISSIONING TEAM</b>	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- 400kV GIS: DEMOBILIZATION & REMOBILIZATION CHARGES OF <b>HV TEST KIT</b> 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.

# BOQ\_Jam Khambhaliya Extension Rev 01

**ANNEXURE:** BOQ\_400kV GIS\_SUPPLY\_JAM\_KHAMBHALIYA\_EXTENSION

**REV No:** 01

**DATE:** 06.05.2024

SI. No.	Item Description	Unit	Qty.	Remarks
<b>7</b>	<b>SUPPLY- GIS : 400KV, 63KA FOR 1S, GAS INSULATED SWITCHGEAR (GIS) AS PER TS</b>			
7.01	GIS BAY SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS TIE BAY MODULE (WITHOUT PIR) AS PER SECTION-PROJECT, TECHNICAL SPECIFICATION	SET	4	
7.02	GIS BAY SUPPLY: 420 KV, 3150 A, 63 KA, SF6 GIS LINE FEEDER BAY MODULE (WITHOUT PIR) AS PER SECTION- PROJECT, TECHNICAL SPECIFICATION	SET	6	
7.03	GIS BAY SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS ICT feederbay module as per Section-Project, Technical specification	SET	2	
7.04	GIS SUPPLY: 420KV, 3150A, 63KA SF6 TO AIR BUSHING INCLUDING SUPPORT STRUCTURE	SET	18	
7.05	GIS SUPPLY: Controlled Switching Device for 420 kV, 3-ph Circuit Breaker	SET	4	1 SET= 1 Nos. of each type and rating
7.06	GIS SUPPLY: 420KV, 3000A, 63KA, SINGLE PHASE, SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONG WITH ASSOCIATED SUPPORT STRUCTURE, ETC. AS PER TECHNICAL SPECIFICATION	M	1620	
7.07	GIS SUPPLY: 420KV, 4000A, 63KA GIS BUSBAR MODULE EXTENSION	SET	2	Existing 420kV, 4000A GIS Main Buses (Bus-I & Bus-II) of M/s Hyosung make shall be extended from existing GIS hall to New GIS Hall, by providing a suitable interface module with isolating link. The outdoor portion of 420kV GIS Main Buses shall be measured from outer edge of the respective wall of the GIS Buildings & Shall be paid separately, against respective item (Sl. No. 7.06) and the indoor portion of 420kV GIS Main Buses shall be covered in this item (Sl. No.7.05) for 420kV GIS Bus bar Module extension.
7.08	GIS SUPPLY: 420KV, 4000A, 63KA, SINGLE PHASE SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONG WITH ASSOCIATED SUPPORT STRUCTURE	M	100	Existing 420kV, 4000A GIS Main Buses (Bus-I & Bus-II) of M/s Hyosung make shall be extended from existing GIS hall to New GIS Hall, by providing a suitable interface module with isolating link. The outdoor portion of 420kV GIS Main Buses shall be measured from outer edge of the respective wall of the GIS Buildings & Shall be paid in this item (Sl. No. 7.06) and the indoor portion of 420kV GIS Main Buses shall be covered & paid separately, against respective item (Sl. No.7.05) for 420kV GIS Bus bar Module extension.
7.09	GIS SUPPLY: Local Control Cubicles (LCC)	Set	12	INCLUDING POWER, CONTROL & INSTRUMENTATION CABLE AS APPLICABLE.
<b>8</b>	<b>SUPPLY- GIS : SPECIAL TOOLS AND TESTING &amp; MAINTENANCE INSTRUMENTS AS PER TS</b>			
8.01	PORTABLE PARTIAL DISCHARGE MEASUREMENT TEST KIT WITH ALL NECESSARY ACCESSORIES, INDUSTRIAL GRADE LAPTOP AND LICENSED SOFTWARE AS PER TECHNICAL SPECIFICATION.	SET	1	1 SET= 1 Nos. of each type and rating
8.02	SF6 GAS ANALYZER	SET	1	1 SET= 1 Nos. of each type and rating
8.03	SF6 GAS LEAKAGE DETECTOR	SET	1	1 SET= 1 Nos. of each type and rating
8.04	SF6 GAS PROCESSING UNIT FOR 400KV GIS STATION	SET	1	
<b>9</b>	<b>SPARES- GIS : 400KV, 63KA FOR 1S, GAS INSULATED SWITCHGEAR (GIS) AS PER TS</b>			
9.01	GIS SPARES: 400KV GIS-SF6 GAS PRESSURE RELIEF DEVICE ASSEMBLY OF EACH TYPE	SET	1	1 SET= 1 Nos. of each type and rating
9.02	GIS SPARES: SF6 PRESSURE GAUGE CUM SWITCH/ DENSITY MONITORS AND PRESSURE SWITCH AS APPLICABLE, OF EACH TYPE-400KV GIS	SET	2	
9.03	GIS SPARES: COUPLING DEVICE FOR PRESSURE GAUGE CUM SWITCH FOR CONNECTING GAS HANDLING PLANT OF EACH TYPE-400KV GIS	SET	1	
9.04	GIS SPARES: RUBBER GASKETS, "O" RINGS AND SEALS FOR SF6 GAS FOR GIS ENCLOSURE OF EACH TYPE-400KV GIS	SET	2	
9.05	GIS SPARES: 400KV GIS-MOLECULAR FILTER FOR SF6 GAS WITH FILTER BAGS (5% OF TOTAL WEIGHT)	SET	1	

Sl. No.	Item Description	Unit	Qty.	Remarks
9.06	GIS SPARES: CONTROL VALVES FOR SF6 GAS OF EACH TYPE- 400KV GIS	SET	2	
9.07	GIS SPARES: 400KV GIS-SF6 GAS (5% OF TOTAL GAS QUANTITY)	LOT	1	
9.08	GIS SPARES: LOCKING DEVICE TO KEEP THE DIS-CONNECTORS (ISOLATORS) AND EARTHING/ FAST EARTHING SWITCHES IN CLOSE OR OPEN POSITION IN CASE OF REMOVAL OF THE DRIVING MECHANISM- 400KV GIS	SET	2	
9.09	GIS SPARES: UHF PD SENSORS OF EACH TYPE ALONG WITH BNC CONNECTOR FOR 420KV GIS	SET	3	1 SET= 1 number of each type and rating
9.10	GIS SPARES: 400KV GIS-SUPPORT INSULATORS (GAS THROUGH) OF EACH TYPE (COMPLETE WITH METAL RING ETC.) ALONG WITH ASSOCIATED CONTACTS AND SHIELDS	SET	3	1 SET= 1 number of each type and rating
9.11	GIS SPARES: 400KV GIS-GAS BARRIERS OF EACH TYPE (COMPLETE WITH METAL RING ETC.) ALONG WITH ASSOCIATED CONTACTS AND SHIELDS	SET	3	1 SET= 1 number of each type and rating
9.12	GIS SPARES: 400KV GIS- 3150A SF6 TO AIR BUSHING COMPLETE IN ALL RESPECT	SET	1	1 SET= 1 number of each type and rating
9.13	GIS SPARES: LCC SPARES - AUX. RELAYS, CONTACTORS, PUSH BUTTONS, SWITCHES, LAMPS, ANNUNCIATION WINDOWS, MCB, FUSES, TIMERS, TERMINAL BLOCKS ETC. OF EACH TYPE & RATING- 400KV GIS	SET	1	
9.14	GIS SPARES: 400KV GIS-ONE POLE OF 3150A CIRCUIT BREAKER WITHOUT PIR WITH INTERRUPTER, MAIN CIRCUIT, ENCLOSURE AND OPERATING MECHANISM COMPLETE IN ALL RESPECT	SET	1	
9.15	GIS SPARES: TRIP COIL ASSEMBLY WITH RESISTOR FOR 420KV GIS CIRCUIT BREAKER (AS APPLICABLE)	SET	3	
9.16	GIS SPARES: CLOSING COIL ASSEMBLY WITH RESISTOR FOR 420KV GIS CIRCUIT BREAKER (AS APPLICABLE)	SET	3	
9.17	GIS SPARES: RELAYS, POWER CONTACTORS, PUSH BUTTONS, TIMERS & MCBS ETC. (AS APPLICABLE) OF EACH TYPE FOR 400KV GIS CIRCUIT BREAKER	SET	1	
9.18	GIS SPARES: AUXILIARY SWITCH ASSEMBLY OF EACH TYPE FOR 420KV GIS CIRCUIT BREAKER	SET	1	
9.19	GIS SPARES: 400KV GIS CIRCUIT BREAKER-OPERATION COUNTER	SET	1	1 SET= 1 number of each type and rating
9.20	GIS SPARES: 400KV GIS CIRCUIT BREAKER-HYDRAULIC OPERATING MECHANISM WITH DRIVE MOTOR (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	SET	1	
9.21	GIS SPARES: HYDRAULIC FILTER OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	SET	1	
9.22	GIS SPARES: 400KV GIS CIRCUIT BREAKER- HOSE PIPE OF EACH TYPE (AS APPLICABLE) (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	SET	1	
9.23	GIS SPARES: 400KV GIS CIRCUIT BREAKER - N2 ACCUMULATOR (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	SET	1	
9.24	GIS SPARES: VALVES OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	SET	1	
9.25	GIS SPARES: PIPE LENGTH (COPPER & STEEL) OF EACH SIZE & TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)- 400KV GIS CIRCUIT BREKAER	SET	1	
9.26	GIS SPARES: PRESSURE SWITCHES OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)- 400KV GIS CIRCUIT BREKAER	SET	1	
9.27	GIS SPARES: PRESSURE GAUGE WITH COUPLING DEVICE OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)- 400KV GIS CIRCUIT BREKAER	SET	1	
9.28	GIS SPARES: 400KV GIS CIRCUIT BREAKER- HYDRAULIC OIL (5% OF TOTAL OIL QUANTITY) (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	SET	1	
9.29	GIS SPARES: PRESSURE RELIEF DEVICE OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)- 400KV GIS CIRCUIT BREKAER	SET	1	
9.30	GIS SPARES: 400KV GIS CIRCUIT BREAKER-COMPLETE SPRING OPERATING MECHANISM INCLUDING CHARGING MECHANISM ETC. (FOR SPRING OPERATED MECHANISM, IF APPLICABLE)	SET	1	
9.31	GIS SPARES: 400KV GIS CIRCUIT BREAKER- COMPLETE HYDRAULIC- SPRING OPERATING MECHANISM INCLUDING CHARGING MECHANISM ETC. (FOR HYDRAULIC-SPRING OPERATED MECHANISM, IF APPLICABLE)	SET	1	
9.32	GIS SPARES: PRESSURE SWITCHES OF EACH TYPE FOR 420KV GIS CIRCUIT BREAKER (FOR HYDRAULIC-SPRING OPERATED MECHANISM, IF APPLICABLE)	SET	1	
9.33	GIS SPARES: PRESSURE GAUGE WITH COUPLING DEVICE OF EACH TYPE (FOR HYDRAULIC-SPRING OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	SET	1	

Sl. No.	Item Description	Unit	Qty.	Remarks
9.34	GIS SPARES: 400KV GIS- SINGLE PHASE OF 3150A DISCONNECTOR SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	SET	2	NOTE 1- THE CONTRACTOR SHALL SUPPLY SPARE FOR DISCONNECTOR SWITCH TO ENSURE ONE TO ONE REPLACEMENT OF ALL DISCONNECTOR SWITCH SUPPLIED AS MAIN EQUIPMENT WITHOUT ANY REQUIREMENT OF MODIFICATION IN FITTINGS AT SITE TO COVER ALL DIFFERENT TYPES OF DISCONNECTOR SWITCH SUPPLIED. IN CASE, QUANTITY OF SUPPLIED DIS-CONNECTOR SWITCH TYPES (FOR ONE TO ONE REPLACEMENT) ARE MORE THAN THE QUANTITY MENTIONED IN BPS FOR SPARE, THE CONTRACTOR SHALL SUPPLY THESE ADDITIONAL TYPES OF DISCONNECTOR SWITCH WITHOUT ANY ADDITIONAL PRICE IMPLICATION TO POWERGRID AND QUANTITIES OF THESE ADDITIONAL TYPE OF DISCONNECTOR SWITCH ARE DEEM TO BE INCLUDED IN THE QUANTITIES MENTIONED IN BPS FOR SPARE DISCONNECTOR. NOTE 2 - INCASE, DIS-CONNECTOR SWITCH (DS) & EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH COMMON OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR & EARTH SWITCH IN SINGLE ENCLOSURE WITH COMMON OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY. NOTE3- IN CASE, DIS-CONNECTOR SWITCH (DS) & EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH SEPARATE OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR & EARTH SWITCH IN SINGLE ENCLOSURE WITH SEPARATE OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY. 1 SET= 1 number of each type and rating
9.35	GIS SPARES: 400KV GIS- SINGLE PHASE MAINTENANCE EARTHING SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	SET	1	NOTE 1 - IN CASE, DIS-CONNECTOR SWITCH (DS) & EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH COMMON OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR & EARTH SWITCH IN SINGLE ENCLOSURE WITH COMMON OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY. NOTE 2 - INCASE, DIS-CONNECTOR SWITCH (DS) & EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH SEPARATE OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR & EARTH SWITCH IN SINGLE ENCLOSURE WITH SEPARATE OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY. 1 SET= 1 number of each type and rating
9.36	GIS SPARES: GIS SPARES: GIS SPARES: 400KV GIS - SINGLE PHASE FAST EARTHING SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	SET	1	NOTE 1 - IN CASE, DIS-CONNECTOR SWITCH (DS) & EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH COMMON OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR & EARTH SWITCH IN SINGLE ENCLOSURE WITH COMMON OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY. NOTE 2 - IN CASE, DIS-CONNECTOR SWITCH (DS) & EARTH SWITCH (ES) IS PROVIDED IN A SAME ENCLOSURE WITH SEPARATE OPERATING MECHANISM, THEN THE MODULE COMPRISING OF DIS-CONNECTOR & EARTH SWITCH IN SINGLE ENCLOSURE WITH SEPARATE OPERATING MECHANISM IS TO BE PROVIDED UNDER THE HEAD OF SPARE DIS-CONNECTOR ONLY.) 1 SET= 1 number of each type and rating
9.37	GIS SPARES: OPEN/ CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS DISCONNECTOR SWITCH	SET	1	
9.38	GIS SPARES: OPEN/ CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS MAINTENANCE EARTH SWITCH	SET	1	
9.39	GIS SPARES: OPEN/ CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS FAST EARTHING SWITCH	SET	1	
9.40	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR DISCONNECTOR- 400KV GIS	SET	1	
9.41	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR MAINTENANCE EARTHING SWITCH- 400KV GIS	SET	1	

Sl. No.	Item Description	Unit	Qty.	Remarks
9.42	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR FAST EARTHING SWITCH (IF APPLICABLE)- 400KV GIS	SET	1	
9.43	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS DISCONNECTOR SWITCH	SET	1	
9.44	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS MAINTENANCE EARTH SWITCH	SET	1	
9.45	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS FAST EARTHING SWITCH	SET	1	
9.46	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS DISCONNECTOR SWITCH	SET	1	1 SET= 1 number of each type and rating
9.47	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS MAINTENANCE EARTH SWITCH	SET	1	1 SET= 1 number of each type and rating
9.48	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS FAST EARTHING SWITCH	SET	1	1 SET= 1 number of each type and rating
9.49	GIS SPARES: 400KV GIS- SINGLE PHASE OF CURRENT TRANSFORMER (3 CORES, TYPE-CTA) WITH ASSOCIATED ENCLOSURE AND PRIMARY CONDUCTOR COMPLETE IN ALL RESPECT	SET	1	1 SET= 1 number of each type and rating
9.50	GIS SPARES: 400KV GIS- SINGLE PHASE OF CURRENT TRANSFORMER (2 CORES, TYPE-CTB) WITH ASSOCIATED ENCLOSURE AND PRIMARY CONDUCTOR COMPLETE IN ALL RESPECT	SET	1	1 SET= 1 number of each type and rating
3.51	GIS SPARES: Controlled Switching Device for 420 kV, 3-ph Circuit Breaker	SET	1	1 SET= 1 Nos. of each type and rating

10	SPARES- GIS : <b>REFERENCE UNIT PRICE FOR ADDITION / DELETION</b> OF SUPPLY ITEMS (Unit Prices of Individual Equipment included here or in mandatory 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)			
10.01	SPARES: 400KV GIS- GIS METALLIC ENCLOSURE	KG	50	
10.02	SPARES: 400KV GIS- EXPANSION BELLOWS/ JOINTS	SET	1	1 SET= For Single Phase of any type and any rating.
10.03	SPARES: 400KV GIS- TEE BEND	SET	1	1 SET= For Single Phase of any type and any rating.
10.04	SPARES: 400KV GIS- L BEND	SET	1	1 SET= For Single Phase of any type and any rating.

Sl. No.	Description	Unit	Quantity	Remarks
11	SERVICES- GIS : 400KV, 63KA FOR IS, GAS INSULATED SWITCHGEAR (GIS) AS PER TS			
11.01	SERVICES- 400kV GIS: SUPERVISION OF ERECTION OF GIS	Bays	12	Supervision of erection of GIS with main bus, complete as per TS in all respect including LCC and its accessories (including CSD). It also includes verification of materials for proper storage at site for final storage. Earthing, SF6 Gas Filling works, Internal Cabling from GIS to LCC, including Structure Works are covered under this item. GIS Bus Duct & SF6 to Air Bushing (SAB) are not covered in this BOQ item.
11.02	SERVICES- 400kV GIS: SUPERVISION OF ERECTION OF GAS INSULATED BUS DUCT	MTR	1620	Supervision of erection of GIB complete as per TS in all respect. GIB outside the GIS Hall wall shall be considered for mode of measurement. Earthing, SF6 Gas Filling works, Internal Cabling from GIS to LCC, including Structure Works are covered under this item. Inner side GIB / Aux Bus Module etc are to be considered as part of respective GIS Assembly and cost of the same shall be deemed inclusive.
11.03	SERVICES- 400kV GIS: SUPERVISION OF ERECTION OF 4000A, 63KA GIS BUSBAR MODULE EXTENSION	SET	2	Existing 420kV, 4000A GIS Main Buses (Bus-I & Bus-II) of M/s Hyosung make shall be extended from existing GIS hall to New GIS Hall, by providing a suitable interface module with isolating link. Accordingly, charges of requirement of M/s Hyosung representative, if required, during completion of work at site, shall be in bidder's scope. Earthing, SF6 Gas Filling works, Internal Cabling from GIS to LCC, including Structure Works are covered under this item.
11.04	SERVICES- 400kV GIS: SUPERVISION OF ERECTION OF 4000A, 63KA, SINGLE PHASE SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONG WITH ASSOCIATED SUPPORT STRUCTURE	M	100	Existing 420kV, 4000A GIS Main Buses (Bus-I & Bus-II) of M/s Hyosung make shall be extended from existing GIS hall to New GIS Hall, by providing a suitable interface module with isolating link. Accordingly, charges of requirement of M/s Hyosung representative, if required, during completion of work at site, shall be in bidder's scope. Earthing, SF6 Gas Filling works, Internal Cabling from GIS to LCC, including Structure Works are covered under this item.
11.05	SERVICES- 400kV GIS: SUPERVISION OF ERECTION OF SF6 TO AIR BUSHING	SET	18	Earthing, SF6 Gas Filling works, Internal Cabling from GIS to LCC, including Structure Works are covered under this item.
11.06	SERVICES- 400kV GIS: TESTING & COMMISSIONING OF GIS	Bays	12	Testing and commissioning of complete GIS system including main bus, LCC and associated system (including CSD) 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.
11.07	SERVICES- 400kV GIS : TESTING & COMMISSIONING OF GAS INSULATED BUS DUCT	MTR	1620	GIB outside the GIS Hall wall shall be considered for mode of measurement. Inner side GIB / Aux Bus Module e.t.c. are to be considered as part of respective GIS Assembly and cost of the same shall be deemed inclusive. 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.

Sl. No.	Description	Unit	Quantity	Remarks
11.08	SERVICES- 400kV GIS : TESTING & COMMISSIONING OF 4000A, 63KA GIS BUSBAR MODULE EXTENSION	SET	2	Existing 420kV, 4000A GIS Main Buses (Bus-I & Bus-II) of M/s Hyosung make shall be extended from existing GIS hall to New GIS Hall, by providing a suitable interface module with isolating link. Accordingly, charges of requirement of M/s Hyosung representative, if required, during completion of work at site, shall be in bidder's scope.
11.09	SERVICES- 400kV GIS : TESTING & COMMISSIONING OF 4000A, 63KA, SINGLE PHASE SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONG WITH ASSOCIATED SUPPORT STRUCTURE	M	100	Existing 420kV, 4000A GIS Main Buses (Bus-I & Bus-II) of M/s Hyosung make shall be extended from existing GIS hall to New GIS Hall, by providing a suitable interface module with isolating link. Accordingly, charges of requirement of M/s Hyosung representative, if required, during completion of work at site, shall be in bidder's scope.
11.10	SERVICES- 400kV GIS : TESTING & COMMISSIONING OF SF6 TO AIR BUSHING	SET	18	
11.11	SERVICES- 400kV GIS : FINAL SUCCESSFUL HV/ POWER FREQUENCY TESTING OF GIS INCLUDING ARRANGING OF HV TEST KIT ALONG WITH OPERATOR	Bays	12	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 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.
11.12	SERVICES- 400kV GIS : INSULATION CO-ORDINATION STUDIES FOR GIS SYSTEM	LOT	1	1 Lot means Complete study report as per technical specification, Including VFTO report.
11.13	SERVICES- 400kV GIS : TRAINING FOR GIS AT SITE	DAY	2	
11.14	SERVICES- 400kV GIS : TRAINING FOR GIS AT MANUFACTURER WORKS	DAY	2	
12	SERVICES- GIS : <b>REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES:</b> (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 EVALUATION)			
12.01	SERVICES- 400kV GIS: REF. UNIT PRICE OF GIS INDIVIDUAL ITEM/ EQUIPMENT - <b>SERVICES FOR SUPERVISION OF ERECTION OF GIS</b>	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.
12.02	SERVICES- 400kV GIS: REF. UNIT PRICE OF GIS INDIVIDUAL ITEM/ EQUIPMENT - <b>SERVICES FOR TESTING &amp; COMMISSIONING OF GIS</b>	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.
<b>DEMOBILIZATION AND REMOBILIZATION CHARGES</b>				
12.03	SERVICES- 400kV GIS: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS <b>ERECTION SUPERVISION TEAM</b>	Set	2	THIS BOQ ITEM SHALL BE EXECUTED IF REQUIRED FOR REASONS NOT ATTRIBUTABLE TO BIDDER.
12.04	SERVICES- 400kV GIS: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS <b>TESTING &amp; COMMISSIONING TEAM</b>	Set	2	BOQ ITEM SHALL BE PAYABLE IF REQUIRED FOR REASONS NOT ATTRIBUTE TO BIDDER. HV TESTING IS NOT PART OF THIS ITEM.

Sl. No.	Description	Unit	Quantity	Remarks
12.05	SERVICES- 400KV GIS: DEMOBILIZATION & REMOBILIZATION CHARGES OF <b>HV TEST KIT</b> 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.

# Annexure- Section Project REV01

## **SECTION- PROJECT**

### **1. GENERAL**

#### **1.1 Preamble:**

Power Grid Corporation of India Ltd. (POWERGRID), A Govt. of India Enterprise is responsible for Bulk Power Transmission of electrical energy from various central Govt. Power Projects to various utilities/ beneficiaries and interconnecting regional grids, operating and maintaining the National Electrical Grid of India. It is established with the mission of “We will become a Global Transmission Company with Dominant Leadership in Emerging Power Markets with World Class Capabilities by:

- a) World Class: Setting superior standards in capital project management and operations for the industry and ourselves
- b) Global: Leveraging capabilities to consistently generate maximum value for all stakeholders in India and in emerging and growing economies.
- c) Inspiring, nurturing and empowering the next generation of professionals.
- d) Achieving continuous improvements through innovation and state of the art technology.
- e) Committing to highest standards in health, safety, security and environment.”

**1.2** Govt. of India (MoP) has identified the execution of “*Inter-State Transmission System for Network Expansion scheme in Gujrat for drawl of about 3.6 GW load under Phase-I in Jamnagar area*” through Tariff Based Competitive Bidding (TBCB) route. POWERGRID is intending to arrange for pre-bid tie-up for the scope envisaged.

**1.3** The following elements are envisaged under “*Inter-State Transmission System for Network Expansion scheme in Gujrat for drawl of about 3.6 GW load under Phase-I in Jamnagar area*” through TBCB route:

#### **A. Substations:**

- i. Establishment of 2x1500 MVA, 765/400 kV Jamnagar (GIS) PS with 2x330 MVAR, 765kV Bus Reactor and 2x125 MVAR, 420 kV Bus Reactor.
- ii. 2 Nos. of 765 kV line bays at Halvad for termination of Halvad – Jamnagar 765 kV D/c line.
- iii. 330 MVAR switchable line reactors on each ckt at Jamnagar end of Halvad – Jamnagar 765 kV D/c line (with NGR bypass arrangement).
- iv. 50 MVAR, 420 kV switchable Line Reactors on each ckt at Jamnagar end of Jamnagar – Lakadia 400 kV D/c line (with NGR bypass arrangement).
- v. 2 nos. of 400kV line bays at Jam Khambhaliya for termination of Jamnagar – Jam Khambhaliya 400kV D/c line
- vi. 80 MVAR, 420 kV switchable Line Reactors on each ckt at Jamnagar end of Jamnagar – CGPL 400kV D/c line (with NGR bypass arrangement).
- vii. 4 nos. of 400kV line bays at Jam Khambhaliya for LILO of both ckts of Kalavad – Bhogat 400kV D/c line

*Technical Specification, Section Project {Rev.01}*

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### **B. Transmission Lines**

- i. Halvad – Jamnagar 765 kV D/c line.
- ii. LILO of Jam Khambhaliya PS – Lakadia 400kV D/c (triple snowbird) line at Jamnagar.
- iii. Jamnagar – Jam Khambhaliya 400kV D/c (Quad ACSR/AAAC/AL59 moose equivalent) line.
- iv. LILO of CGPL - Jetpur 400 kV D/c (triple snowbird) line at Jamnagar.
- v. LILO of both ckts of Kalavad - Bhogat 400kV D/c (Twin AL-59) line at Jam Khambhaliya PS.

### **C. STATCOM**

- i. ± 400 MVAR STATCOM with 3x125 MVAR MSC & 2x125 MVAR MSR at Jamnagar 400kV Bus Section with 2 No. of 400 kV GIS bays (1 no. for STATCOM & 2<sup>nd</sup> for Dia. Completion)

**1.4** It is the intent of this specification to describe primary features, materials, and design & performance requirements and to establish minimum standards for the work. The specification is not intended to specify the complete details of various practices of manufactures/ bidders, but to specify the requirements with regard to performance, durability and satisfactory operation under the specified site conditions.

**1.5** The work to be done under this specification shall include all labour, plant, equipment, material and performance of all work necessary for the complete installation and commissioning of switchyard. All apparatus, appliances, material and labour etc. not specifically mentioned or included, but are necessary to complete the entire work or any portion of the work in compliance with the requirements implied in this specification is deemed to be included in the scope of contractor.

**1.6** Before proceeding with the construction work the Contractor shall fully familiarize himself with the site conditions and General arrangements & scheme etc. Though the Employer shall endeavor to provide the information, it shall not be binding for the Employer to provide the same. The bidders are advised to visit the substation sites and acquaint themselves with the topography, infrastructure and also the design philosophy. The contractor shall be fully responsible for providing all equipment, materials, system and services specified or otherwise which are required to complete the construction and successful commissioning, operation & maintenance of the substation in all respects. All materials required for the Civil and construction/installation work including cement and steel shall be supplied by the Contractor.

Complete design (unless specified otherwise in specification elsewhere) and detailed engineering shall be done by the Contractor

## **2. SCOPE OF WORK**

**2.1** The broad scope for **400kV GIS** at 765/400/220kV Jamnagar (GIS) Substation & **400kV GIS** at 400/220kV Jam Khambhaliya (GIS) Substation is as following:

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S. No.	Scope
	<p><b><u>400 kV (Under scope of Substation Package SS-52T):</u></b></p> <ul style="list-style-type: none"><li>• Bus reactor: 2X125 MVAR, 420kV, 3-phase reactors</li><li>• Bays for 765/400kV ICT's: 2nos.</li><li>• Switchable Line reactors along with switching equipments: 2X50 MVAR, 420kV, 3-phase reactor at Jamnagar end for Jamnagar – Lakadia 400 kV D/c line (with NGR bypass arrangement).</li><li>• Switchable Line reactors along with switching equipments: 2X80 MVAR, 420kV, 3-phase reactor at Jamnagar end for Jamnagar – CGPL 400 kV D/c line (with NGR bypass arrangement).</li><li>• Line bays: 10nos. (<b>4nos.</b> for LILO of Jam Khambhaliya PS – Lakadia 400 kV D/c line at Jamnagar (GIS)) (<b>2nos.</b> for Jamnagar – Jam Khambhaliya 400kV D/c line) (<b>4nos.</b> for LILO of CGPL – Jetpur 400 kV D/c line at Jamnagar (GIS))</li><li>• Bus reactor bay: 2nos.</li><li>• 400/220kV ICT bay- 01no.</li><li>• STATCOM Bay: 01no.</li><li>• STATCOM stations: ±400MVA along with 3x125MVA MSC &amp; 2x125MVA MSR</li><li>• All associate tie bays</li><li>• Future bays for 765/400kV ICT's: 4nos.</li><li>• Future 400/220kV ICT's : 6nos.</li><li>• Future 400/220kV ICT's bays: 5nos</li><li>• Future Bus Reactor along with bays: 2nos.</li><li>• Future Line with switchable reactor bays: 8nos.</li><li>• Future Bus Sectionalizer bay: 1 Set</li></ul>

FOR INFORMATION ONLY

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	<b>220kV (Future):</b> <ul style="list-style-type: none"><li>• Future ICT bays: 6 nos.</li><li>• Future Bus Coupler bays: 2nos.</li><li>• Future Line bays: 14 nos.</li><li>• Future Sectionalization bay: 1 set</li></ul>
2.	<b>Extension of 400kV Jam Khambhaliya (GIS) S/s</b> <ul style="list-style-type: none"><li>• Line bays: 6 nos. (4nos. for LILO of Kalavad – Bhogat 400 kV D/c line at Jam Khambhaliya (GIS)) (2nos. for Jamnagar – Jam Khambhaliya 400kV D/c line)</li><li>• ICT bays: 2 nos. for future 400/220kV ICTs</li><li>• All associate tie bays</li></ul>

Construction of 765kV Jamnagar (GIS) substation (including 765kV bays) at Jamnagar and supply, erection, testing and commissioning of 765/400/33kV Transformers, 765kV Reactors & 420kV Reactors are covered under separate package(s).

Further, Construction of STATCOM stations (Excluding 400kV GIS bays):  $\pm 400$ MVAR along with 3x125MVAR MSC & 2x125MVAR MSR are covered under separate package(s).

### **2.2 The detailed scope of works of the substation package is brought out in subsequent clauses of this section.**

#### **2.2.1 400kV Jamnagar (GIS) Substation**

2.2.1.1 Design, engineering, manufacture, testing, supply including transportation & insurance, unloading, storage, erection, testing and commissioning at site of following equipments and items complete in all respect:

##### **A. 420kV Gas Insulated Switchgear**

The SF6 gas insulated switch gear (50 Hz) shall be of the indoor metal-enclosed type.

420kV SF6 gas insulated switch gear shall have one and a half breaker bus bar arrangement. The Switchgear shall be complete with all necessary terminal boxes, SF<sub>6</sub> gas filling, interconnecting power and control wiring, grounding connections, gas monitoring equipment & piping and support structures along with necessary base plate & foundation bolts. In addition all necessary stairs, platforms, supports, fixed ladders, portable scissor lift and walkways etc. as required for operation & maintenance work shall also be provided.

##### **a) 420kV GIS Coupling transformer bay module (For 400kV side of 400/XX kV Coupling transformer bay):**

**SF6 gas-insulated metal enclosed Coupling transformer bay module, each set comprising of the following:**

- i. One (1) number 3-phase, SF6 gas insulated circuit breaker without PIR, complete with operating mechanism.
- ii. Three (3) numbers 1-phase, 3-core, multi ratio, current transformers (CTA) on one side of circuit breaker.
- iii. Three (3) numbers 1-phase, 2-core, multi ratio, current transformers (CTB) on other side of circuit breaker.

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- iv. Two (2) numbers 3-phase, single pole, group operated isolator switches complete with manual and motor driven operating mechanisms.
- v. Two (2) numbers 3-phase, single pole, group operated safety grounding switches complete with manual and motor driven operating mechanisms.
- vi. Three (3) numbers 1-phase, individual pole operated isolator switches, complete with manual and motor driven operating mechanisms.
- vii. Three (3) numbers 1-phase, individual pole operated safety grounding switches, complete with manual and motor driven operating mechanisms.
- viii. Three (3) numbers 1-phase, individual pole operated isolator switches, complete with manual and motor driven operating mechanisms for switching of Spare Coupling transformer through Auxiliary bus. The isolator must meet the operational requirement in terms of Phase- phase insulation withstand capability.
- ix. Three (3) numbers single phase SF6, ducts inside the GIS hall (up to the outer edge of the wall of GIS Hall).
- x. Gas monitoring devices, barriers, pressure switches, UHF PD sensors, support structures etc. as required.
- xi. Local Control cubicle

**b) GIS Auxiliary Bus module for Spare Coupling transformer Connection (For 400kV side of 400/XX kV Coupling transformer):**

**Set of isolated phases, SF6 gas-insulated metal enclosed Auxiliary bus bars module for Coupling transformer bays, each set comprising of the following:**

- i. One (1) number 1-Phase, Auxiliary bus bar enclosure running across the length of the switch gear to inter-connect the spare unit of Coupling transformer with all Coupling transformer bay Modules through GIS Duct.
  - ii. One (1) number 1-Phase, single pole operated safety grounding switch, complete with manual and motor driven operating mechanisms.
  - iii. Gas monitoring devices, barriers, pressure switches, UHF PD sensors, support structures etc. as required.
- c) Other standard 420kV GIS modules/Equipments as per BPS and description given in Specific requirement Rev.08 attached at Annexure-III.**
- d) Controlled Switching device as per BPS.**
- e) EOT crane for 400kV GIS hall under present scope.**
- f) Air conditioning system, Ventilation system and Fire detection & alarm system for 400KV GIS hall & associated relay panel room/AHU Room.**
- g) Any other equipment/material required to complete the specified GIS scope of work.**

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### **2.2.2 Extension of 400kV Jam Khambhaliya (GIS) Substation (Owner-ADANI POWER)**

2.2.2.1 Design, engineering, manufacture, testing, supply including transportation & insurance, unloading, storage, erection, testing and commissioning at site of following equipment and items complete in all respect:

#### **A. 420kV Gas Insulated Switchgear**

The SF6 gas insulated switch gear (50 Hz) shall be of the indoor metal-enclosed type.

Existing 420kV, 4000A GIS Main Buses (Bus-I & Bus-II) of M/s Hyosung make shall be extended from existing GIS hall to New GIS Hall, by providing a suitable interface module with isolating link. The outdoor portion of 420kV GIS Main Buses shall be measured from outer edge of the respective wall of the GIS Buildings & Shall be paid separately, against respective BPS item and the indoor portion of 420kV GIS Main Buses shall be covered in item for 420kV GIS Bus bar Module extension.

The 420kV SF6 gas insulated switch gear shall have one and a half breaker bus bar arrangement. The Switchgear shall be complete with all necessary terminal boxes, SF<sub>6</sub> gas filling, interconnecting power and control wiring, grounding connections, gas monitoring equipment & piping and support structures along with necessary base plate & foundation bolts. In addition, all necessary platforms, supports, ladders and catwalks etc. as required for operation & maintenance work shall also be provided.

- a) 420kV GIS modules/Equipment as per BPS and description given in Specific requirement Rev.08 attached at Annexure-III.
- b) Testing and Maintenance equipment as per BPS.
- c) **Controlled Switching device as per BPS.**
- d) EOT crane for New 400kV GIS hall under present scope.
- e) Air conditioning system, Ventilation system and Fire detection & alarm system for GIS hall & relay panel room/AHU Room.
- f) Any other equipment/material required to complete the specified GIS scope of work.

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### 4. PHYSICAL AND OTHER PARAMETERS

4.1 Location of the Substation - The location of substation is indicated below:

Sr. No	Name of Substation	Name of State	Nearest Rail Head
1.	Jamnagar (GIS)	Gujrat	Jamnagar
2.	Jam Khambhaliya	Gujrat	Khambhaliya

### 4.2 Meteorological data

The meteorological data are as below

Station Name	765/400/220kV Jamnagar (GIS) S/s	400kV Jam Khambhaliya (GIS) S/s
Altitude	Less than 1000 meter above mean sea level (MSL)	Less than 1000 meter above mean sea level (MSL)
Snow fall	NIL	NIL
Seismic Zone	As per IS 1893 (Part 1)	As per IS 1893 (Part 1)
Wind Zone	NBC 2016	NBC 2016
Min./Max. Ambient Temperature	0 / 50 degree centigrade	0 / 50 degree centigrade
Coastal Area consideration	YES	YES

4.3 Fault level shall be considered as mentioned below:-

Sl. No.	Name of Substation	765kV	400kV
1.	765/400/220kV Jamnagar	50kA for 1 Sec	63kA for 1 Sec
2.	400kV Jam Khambhaliya	NA	63kA for 1 Sec

### 5. SCHEDULE OF QUANTITIES

The requirement of various items/equipments and civil works are indicated in Bid price Schedules.

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All equipments/items, Structures and civil works for which quantities has been given in the BPS shall be payable on unit rate basis. During actual execution, any variation in such quantities shall be paid based on the unit rate under each item incorporated in Letter of award. Wherever the quantities of items/works are indicated in Set/LOT/LS, the bidder is required to estimate the quantity required for entire execution and completion of works and incorporate their price in respective Bid price schedules. For erection hardware items, Bidders shall estimate the total requirement of the works and indicate module-wise lump sum price bay wise and include the same in relevant Bid price schedules. Any material/works for the modules not specifically mentioned in the description in BPS, as may be required shall be deemed to be included in the module itself.

No cost compensation shall be considered on account of “Set/LOT/LS” items in any case if number of bays specified in section project remains unchanged.

Bidder should include all such items in the bid proposal sheets, which are not specifically mentioned but are essential for the execution of the contract. Item which explicitly may not appear in various schedules and required for successful commissioning of substation shall be included in the bid price and shall be provided at no extra cost to Employer.

### **6. BASIC REFERENCE DRAWINGS**

- a) Design of substation and its associated electrical & mechanical auxiliaries systems includes preparation of single line diagram, electrical layout, foundation & cable trench layouts (including invert levels), erection key diagrams, direct stroke lightning protection, electrical and physical clearance diagrams, Control and protection schematics, wiring and termination schedules, design of firefighting system, outdoor lighting/illumination and other relevant drawings & documents required for engineering of all facilities within the fencing to be provided under this contract, are covered under the scope of the Contractor.
- b) The substation shall be designed considering current ratings as indicated below-

Sl. No	Description of bay	765/400/220Kv Jamnagar GIS		Extn of 400kV Jam
		S/s		Khambhaliya (GIS) S/s
		765kV	400kV	400kV
1.	Bus Bar	4000A	4000A	4000A
2.	Line bay	3150A	3150A	3150A
3.	ICT bay	3150A	3150A	-
4.	Bus Reactor Bay	3150A	3150A	-
5.	Switchable line Reactor Bay	3150A	3150A	-
6.	Tie bay	3150A	3150A	3150A
7.	STATCOM Bay	-	3150A	-

- c) Following switching schemes are envisaged under present scope:

Name of substation	Bus switching scheme		
	765kV (covered under separate package)	400kV	220kV (Future)
Jamnagar (GIS)	One & half breaker scheme	One & half breaker scheme	Double Main
Jam Khambhaliya	NA	One & half breaker scheme	NA

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- d) The reference drawings, which form a part of the specifications, are given at Annexure-I. The bidder shall maintain the phase to earth clearance, phase to phase clearance and sectional clearances, clearances between buses, bus heights but may alter the locations of equipment to obtain the statutory electrical clearances required for the substation.
- e) It is responsibility of contractor to develop general arrangement drawing, layout drawings, single line drawing, foundation & cable trench layout, erection key diagram & all other layout drawings for present scope of work.
- f) **INPUTS TO BE PROVIDED DURING DETAILED ENGINEERING**
  - i) Location of identified land and Plot plan for land shall be provided to successful bidder during detailed engineering.
  - ii) Transmission line side conductor type & configuration of conductors for transmission lines of various voltage levels.

In case of any discrepancy between Section-PROJECT, Section-GTR and other technical specifications on scope of works, Section-PROJECT shall prevail over all other sections.

In case of any discrepancy between Section-GTR and individual sections for various equipments, requirement of individual equipment section shall prevail. In case of any discrepancy between Main body of Section-Project and Annexure(s) of Section-Project, provisions specified in Main body of Section-Project shall prevail.

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In case of any discrepancy between BPS and other sections, BPS shall prevail over the other sections of the technical specifications. However, for rating of the BPS items, associated Section-Project shall be referred to.

### **8. MANDATORY SPARES**

The Mandatory Spares shall be included in the bid proposal by the bidder. The prices of these spares shall be given by the Bidder in the relevant schedule of BPS and shall be considered for evaluation of bid. It shall not be binding on the Employer to procure all of these mandatory spares.

The bidder is clarified that no mandatory spares shall generally be used during the commissioning of the equipment. Any spares required for commissioning purpose shall be arranged by the Contractor. The unutilized spares if any brought for commissioning purpose shall be taken back by the contractor.

Wherever spares in BPS/Technical Specification have been specified as “each type/each rating/each type & rating”: If the offered spare/spares is sufficient to replace the respective main equipment of all types/ratings, then such offered spare/spares shall be acceptable. It implies that common spare/spare set fulfilling the spare requirement of all types/ratings shall also be acceptable, provided it is configurable at site itself without special assistance of OEM.

Mandatory Spares, wherever mentioned, are envisaged for the equipment/items being supplied under the main equipment heads under present scope meeting the requirements of Technical Specifications. The component/sub-component of an equipment/item specified in BPS under Mandatory Spare, which is not applicable as per the offered design of respective main equipment, shall not be referred to.

### **9. SPECIFIC REQUIREMENT**

9.1 Relevant/applicable clauses of Specific Requirements as mentioned at C/ENGG/SPEC/SEC-PROJECT/SPECIFIC REQUIREMENT Rev. no. 08 (attached as Annexure-III) shall also be referred for specified scope of work. Any discrepancy between clause 9.0 Section-PROJECT and Specific Requirements as mentioned at C/ENGG/SPEC/SEC-PROJECT/SPECIFIC REQUIREMENT Rev. no. 08 (attached at Annexure-III) on scope of works, the requirement stipulated at clause 9.0 of section project shall prevail.

9.2 Requirement Specified at clause no 5.43.3 Section GIS Rev 5A [mentioned at SPECIFIC REQUIREMENT (REV NO 08)] for Requirement for Gas Zone Trip Scheme of GIS gas Tight Compartments stands deleted.

9.3 Proposed Jamnagar S/s is to be equipped with STATCOM under separate package and any inputs or details as required for Study & Design of STATCOM is to be provided by the Contractor. In case of GIS data, contractor shall arrange input & details from it's vendor/GIS Manufacturer for that purpose.

Termination details of CB relay panel of 400kV Statcom bay shall be decided in coordination with STATCOM supplier during detailed engineering.

9.4 Transformers of same HV rating shall be placed in different diameters.

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- 9.5 Bus reactors of same HV rating shall be placed in different diameters.
- 9.6 New clause no 5.2 d of Section, Surge Arrester rev-12
- “Type Test-Salt Fog test-For salt fog test, the test conducted on reduced size of test specimen (of LA stack) equivalent to proportionally reduced voltage stress of not less than 40kV shall also be acceptable subject to submission of calculation confirming matching or higher voltage stress per mm applied on test specimen vis-à-vis original(longest) unit.”*
- 9.7 New clause no 5.2 e of Section, Surge Arrester rev-12
- “Type Test-UV light test- UV light test report confirming IEC 62217 shall also be acceptable”*
- 9.8 Clause no 15.2 (vii) of Technical Specification, Section: Switchgear- CB (Rev 11) is amendment as below:
- “For Low & High temperature type test, Field performance report of CB’s as per IEC 62271-100 revision 2008 (covering amendment-2 in 2017) is also acceptable as valid Type test report.”*
- 9.9 For 400kV Jamnagar GIS S/s:
- For one no. of 400kV ICT bay (utilized in future for connection with 400/220kV 3-ph Auto-transformer (F)) associated for completion of 400kV diameter (Statcom bay-Tie bay-ICT bay), 400kV GIS bus ducts shall be brought outside of the GIS hall and provided with end Piece (Interface) module suitably with isolating test link under present scope for future connections. Associated end piece (Interface) module shall be deemed to be part of outdoor bus duct. Outdoor Bus duct including end piece (Interface) module for one no. of ICT bay, shall be measured from outer edge of the wall of the 400kV GIS Hall/Building & Shall be paid separately, against respective BPS items.
- 9.10 For 400kV Jamnagar GIS S/s:
- End Piece (Interface) module as defined in Annexure-S11 of Specific Requirements, Rev-08 (attached at Annexure-III) under sl. no. **(i) GIS Bus bar module for 420kV GIS**, shall be provided on **both side** of busbar module.
  - End Piece (Interface) module as defined in Annexure-S11 of Specific Requirements, Rev-08 (attached at Annexure-III) under sl. no **(vi) GIS Auxiliary Bus module for Spare ICT connection for 400kV side of 765/400kV ICT**, shall be provided on **both side** of Auxiliary busbar module.
- 9.11 “Minimum specified creepage distance for insulator string/ longrod insulators/ outdoor bushings, including SF6 to Air Bushing shall be 31 mm/kV”.
- 9.12 In Section-GTR and other technical specifications, the term ‘Employer and/or ‘Purchaser may be read as Employer.

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9.13 For 400kV Jam Khambhaliya GIS S/s:

For two nos. of 400kV ICT bay (utilized in future for connection with 400/220kV 3-ph Auto-transformers (F)), 400kV GIS bus ducts shall be brought outside of the GIS hall and provided with end Piece (Interface) module suitably with isolating test link under present scope for future connections. Associated end piece (Interface) module shall be deemed to be part of outdoor bus duct. Outdoor Bus duct including end piece (Interface) module for two nos. of ICT bay, shall be measured from outer edge of the wall of the 400kV GIS Hall/Building & Shall be paid separately, against respective BPS items.

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## BREAK-UP OF MANDATORY SPARES (Rev-01)

Sl. No	Description	Unit	Quantity for	
			400kV Jamnagar	400kV Jam Khambhaliya
<b>1.0</b>	<b>CAP VOLTAGE TRANSFORMER</b>			
i	<b>420kV CVT</b>			
a	420kV, 4400pF CVT	No.	1	1
<b>2.0</b>	<b>336kV SURGE ARRESTOR</b>			
a	Complete L.A. (each rating) with insulating base, surge counter/monitor	No.	2	2
b	Surge counter/monitor	No.	2	2
<b>3.0</b>	<b>Relay &amp; Protection System</b>			
i	<b>CSD</b>			
a	Controlled Switching Device (each type)	Set	1	1
ii	<b>Line Protection Panel</b>			
a	Numerical distance relay (Main-I) with in-built DR and fault locator, OV protection, software	No.	1	1
b	Numerical distance relay (Main-II) with in-built DR and fault locator, OV protection, software	No.	1	1
iii	<b>Reactor Protection Panel</b>			
a	Reactor Differential Protection relay	No.	1	-
b	Reactor Restricted earth fault relay type with non-linear resistor	Set	1	-
c	Reactor back-up Impedance protection relay	No.	1	-
iv	<b>Common Spares</b>			
a	Power Supply module for Bus Bar protection	No.	1	-
b	Bay unit module	Set	1	1
c	LBB Relay (if standalone)	No.	1	1
d	Auxiliary & Trip relays	Set	2 (each type)	2 (each type)
<b>4.0</b>	<b>Substation Automation/SCADA System</b>			
a	Bay Control Unit (IED) of Main System	No.	1	1
b	Ethernet switch suitable for 19" Rack Mounting: Ports: 24 Fiber Optic Ports	No.	1	1
<b>5.0</b>	<b>400KV Bus Post insulator</b>			
a	Bus Post Insulator Assembly (Complete)	Set	1	1
<b>6.0</b>	<b>Clamps &amp; Connectors</b>			
a	Each type (excluding equipments)	No.	3	3
<b>7.0</b>	<b>PLCC EQUIPMENT/DTPC</b>			
a	Set of Prints for Carrier terminal (Speech & Protection)	Set	1	1
b	Set of Prints for analog protection coupler	Set	1	1
c	Digital Tele Protection Coupler	No.	1	1
<b>8.0</b>	<b>Fire Protection System</b>			
a)	Smoke Detectors	Nos.	2	2
b)	Deluge Valve	Set	1	1

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Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

Name of the Bidder/ Bidding Firm / Company :	
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**PRICE SCHEDULE**  
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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
1.01	GIS SUPPLY: 420kV, 4000 A, 63 kA, SF6 GIS Bus bar module as per Section-Project, Technical specification	item1	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.02	GIS SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS Auxiliary Bus module for Spare Transformer as per Section-Project, Technical specification	item2	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.03	GIS SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS AUXILIARY BUS MODULE FOR SPARE COUPLING TRANSFORMER AS PER SECTION- PROJECT, TECHNICAL SPECIFICATION	item3	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.04	GIS BAY SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS Bus Reactor bay module as per Section- Project, Technical specification	item4	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.05	GIS BAY SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS Tie bay module (without PIR) as per Section- Project, Technical specification	item5	4	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.06	GIS BAY SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS ICT feeder bay module as per Section-Project, Technical specification	item6	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.07	GIS BAY SUPPLY: 420 kV, 3150 A, 63 kA, SF6 GIS Line feeder bay module (without PIR) as per Section- Project, Technical specification	item7	6	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.08	GIS BAY SUPPLY: 420 kV, 3150 A, 63 kA, SF6 GIS Line feeder bay module (with PIR) as per Section-Project, Technical specification	item8	4	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.09	GIS BAY SUPPLY: 420kV, 3150 A, 63 kA, SF6 GIS Tie bay module (with PIR) as per Section-Project, Technical specification	item9	4	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.10	GIS BAY SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS SWITCHABLE LINE REACTOR BAY MODULE AS PER SECTION-PROJECT, TECHNICAL SPECIFICATION	item10	4	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.11	GIS BAY SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS ICT FEEDER BAY MODULE FOR IV SIDE CONNECTION WITH 765KV ICT AS PER SECTION- PROJECT, TECHNICAL SPECIFICATION	item11	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.12	GIS BAY SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS COUPLING TRANSFORMER FEEDER BAY MODULES PER SECTION- PROJECT, TECHNICAL SPECIFICATION	item12	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

Name of the Bidder/ Bidding Firm / Company :	
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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
1.13	GIS SUPPLY: 420KV, 3150A, 63KA SF6 TO AIR BUSHING including support structure	item13	59	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.14	GIS SUPPLY: Controlled Switching Device for 420 kV, 3-ph Circuit Breaker	item14	14	SET			0.00			0.00		0.000	0.000	INR Zero Only
1.15	GIS SUPPLY: 420KV, 3000A, 63KA, SINGLE PHASE, SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONGWITH ASSOCIATED SUPPORT STRUCTURE, ETC. AS PER TECHNICAL SPECIFICATION	item15	6300	M			0.00			0.00		0.000	0.000	INR Zero Only
1.16	GIS SUPPLY: Local Control Cubicles (LCC)	item16	28	Set			0.00			0.00		0.000	0.000	INR Zero Only
3.01	GIS SPARES: 400KV GIS-SF6 GAS PRESSURE RELIEF DEVICE ASSEMBLY OF EACH TYPE	item17	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.02	GIS SPARES: SF6 PRESSURE GAUGE CUM SWITCH/ DENSITY MONITORS AND PRESSURE SWITCH AS APPLICABLE, OF EACH TYPE-400KV GIS	item18	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.03	GIS SPARES: COUPLING DEVICE FOR PRESSURE GAUGE CUM SWITCH FOR CONNECTING GAS HANDLING PLANT OF EACH TYPE-400KV GIS	item19	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.04	GIS SPARES: RUBBER GASKETS, A,ã,-Ã'OÃ,ã,-Ã RINGS AND SEALS FOR SF6 GAS FOR GISENCLOSURE OF EACH TYPE-400KV GIS	item20	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.05	GIS SPARES: 400KV GIS-MOLECULAR FILTER FOR SF6 GAS WITH FILTER BAGS (5 % OF TOTAL WEIGHT)	item21	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.06	GIS SPARES: CONTROL VALVES FOR SF6 GAS OF EACH TYPE-400KV GIS	item22	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.07	GIS SPARES: 400KV GIS-SF6 GAS (5 % OF TOTAL GAS QUANTITY)	item23	1	LOT			0.00			0.00		0.000	0.000	INR Zero Only
3.08	GIS SPARES: LOCKING DEVICE TO KEEP THE DIS-CONNECTORS (ISOLATORS) AND EARTHING/ FAST EARTHING SWITCHES IN CLOSE OR OPEN POSITION IN CASE OF REMOVAL OF THE DRIVING MECHANISM-400KV GIS	item24	3	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

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Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
3.09	GIS SPARES: UHF PD SENSORS OF EACH TYPE ALONG WITH BNC CONNECTOR FOR 420KV GIS	item25	5	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.10	GIS SPARES: 400KV GIS-SUPPORT INSULATORS (GAS THROUGH) OF EACH TYPE (COMPLETE WITH METAL RING ETC.) ALONG WITH ASSOCIATED CONTACTS AND SHIELDS	item26	5	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.11	GIS SPARES: 400KV GIS-GAS BARRIERS OF EACH TYPE (COMPLETE WITH METAL RING ETC.) ALONG WITH ASSOCIATED CONTACTS AND SHIELDS	item27	5	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.12	GIS SPARES: 400KV GIS- 3150A SF6 TO AIR BUSHING COMPLETE IN ALL RESPECT	item28	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.13	GIS SPARES: LCC SPARES - AUX. RELAYS, CONTACTORS, PUSH BUTTONS, SWITCHES, LAMPS, ANNUNCIATION WINDOWS, MCB, FUSES, TIMERS, TERMINAL BLOCKS ETC. OF EACH TYPE & RATING-400kv GIS	item29	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.14	GIS SPARES: 400KV GIS-ONE POLE OF 3150A CIRCUIT BREAKER WITHOUT PIR WITH INTERRUPTER, MAIN CIRCUIT, ENCLOSURE AND OPERATING MECHANISM COMPLETE IN ALL RESPECT	item30	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.15	GIS SPARES: 400KV GIS-ONE POLE OF 3150A CIRCUIT BREAKER WITH PIR WITH INTERRUPTER, MAIN CIRCUIT, ENCLOSURE AND OPERATING MECHANISM COMPLETE IN ALL RESPECT	item31	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.16	GIS SPARES: Trip coil assembly with resistor for 420kv GIS Circuit Breaker (as applicable)	item32	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.17	GIS SPARES: Closing coil assembly with resistor for 420kv GIS Circuit Breaker (as applicable)	item33	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.18	GIS SPARES: RELAYS, POWER CONTACTORS, PUSH BUTTONS, TIMERS & MCBS ETC. (AS APPLICABLE) OF EACH TYPE FOR 400KV GIS CIRCUIT BREAKER	item34	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 552T-400KV GIS (Jamnagar & Jam Khambhaliya)

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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
3.19	GIS SPARES: Auxiliary switch assembly of each type for 420kV GIS Circuit Breaker	item35	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.20	GIS SPARES: 400KV GIS CIRCUIT BREAKER- OPERATION COUNTER	item36	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.21	GIS SPARES: 400KV GIS CIRCUIT BREAKER- HYDRAULIC OPERATING MECHANISM WITH DRIVE MOTOR (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	item37	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.22	GIS SPARES: HYDRAULIC FILTER OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	item38	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.23	GIS SPARES: 400KV GIS CIRCUIT BREAKER- HOSE PIPE OF EACH TYPE (AS APPLICABLE) (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	item39	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.24	GIS SPARES: 400KV GIS CIRCUIT BREAKER - N2 ACCUMULATOR (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	item40	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.25	GIS SPARES: VALVES OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	item41	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.26	GIS SPARES: PIPE LENGTH (COPPER & STEEL) OF EACH SIZE & TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	item42	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.27	GIS SPARES: PRESSURE SWITCHES OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	item43	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.28	GIS SPARES: PRESSURE GAUGE WITH COUPLING DEVICE OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	item44	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.29	GIS SPARES: 400KV GIS CIRCUIT BREAKER- HYDRAULIC OIL (5% OF TOTAL OIL QUANTITY) (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	item45	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.30	GIS SPARES: PRESSURE RELIEF DEVICE OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM,IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	item46	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
3.31	GIS SPARES: 400KV GIS CIRCUIT BREAKER-COMplete SPRING OPERATING MECHANISM INCLUDING CHARGING MECHANISM ETC. (FOR SPRING OPERATED MECHANISM, IF APPLICABLE)	item47	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.32	GIS SPARES: 400KV GIS CIRCUIT BREAKER-COMplete HYDRAULIC-SPRING OPERATING MECHANISM INCLUDING CHARGING MECHANISM ETC. (FOR HYDRAULIC-SPRING OPERATED MECHANISM, IF APPLICABLE)	item48	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.33	GIS SPARES: PRESSURE SWITCHES OF EACH TYPE FOR 420KV GIS CIRCUIT BREAKER (For Hydraulic-Spring Operated Mechanism, if applicable)	item49	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.34	GIS SPARES: PRESSURE GAUGE WITH COUPLING DEVICE OF EACH TYPE (FOR HYDRAULIC-SPRING OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREAKER	item50	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.35	GIS SPARES: 400KV GIS- Single phase of 3150A Disconnecter switch including main circuit, enclosure, driving mechanism and support insulator etc., complete in all respect	item51	4	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.36	400KV GIS- SINGLE PHASE MAINTENANCE EARTHING SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	item52	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.37	GIS SPARES: 400KV GIS - SINGLE PHASE FAST EARTHING SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	item53	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.38	GIS SPARES: OPEN/CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS DISCONNECTOR SWITCH	item54	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
3.39	GIS SPARES: OPEN/CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS MAINTENANCE EARTH SWITCH	item55	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.40	GIS SPARES: OPEN/CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS FAST EARTHING SWITCH	item56	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.41	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR DISCONNECTOR- 400KV GIS	item57	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.42	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR MAINTENANCE EARTHING SWITCH- 400KV GIS	item58	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.43	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR FASTEARTHING SWITCH (IF APPLICABLE)-400KV GIS	item59	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.44	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS DISCONNECTOR SWITCH	item60	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.45	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS MAINTENANCE EARTH SWITCH	item61	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.46	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS FAST EARTHING SWITCH	item62	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.47	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS DISCONNECTOR SWITCH	item63	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.48	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS MAINTENANCE EARTH SWITCH	item64	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.49	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS FAST EARTHING SWITCH	item65	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

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3.50	GIS SPARES: 400KV GIS- SINGLE PHASE OF CURRENT TRANSFORMER (3 CORES, TYPE-CTA) WITH ASSOCIATED ENCLOSURE AND PRIMARY CONDUCTOR COMPLETE IN ALL RESPECT	item66	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.51	GIS SPARES: 400KV GIS- SINGLE PHASE OF CURRENT TRANSFORMER (2 CORES, TYPE-CTB) WITH ASSOCIATED ENCLOSURE AND PRIMARY CONDUCTOR COMPLETE IN ALL RESPECT	item67	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.52	GIS SPARES: 400KV GIS- SINGLE PHASE VT WITH ASSOCIATED ENCLOSURE COMPLETE IN ALL RESPECT	item68	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
3.53	GIS SPARES: Controlled Switching Device for 420 kV, 3-ph Circuit Breaker	item69	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
4.01	SPARES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SUPPLY ITEMS- GIS METALLIC ENCLOSURE	item70	50	KG			0.00			0.00		0.000	0.000	INR Zero Only
4.02	SPARES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SUPPLY ITEMS- EXPANSION BELLOWS/ JOINTS	item71	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
4.03	SPARES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SUPPLY ITEMS- TEE BEND	item72	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
4.04	SPARES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SUPPLY ITEMS- L BEND	item73	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
5.01	SERVICES- 400kv GIS: SUPERVISION OF ERECTION OF GIS	item74	28	Bays			0.00			0.00		0.000	0.000	INR Zero Only
5.02	SERVICES- 400kv GIS: SUPERVISION OF ERECTION OF GAS INSULATED BUS DUCT	item75	6300	MTR			0.00			0.00		0.000	0.000	INR Zero Only
5.03	SERVICES- 400kv GIS: SUPERVISION OF ERECTION OF SF6 TO AIR BUSHING	item76	59	SET			0.00			0.00		0.000	0.000	INR Zero Only
5.04	SERVICES- 400kv GIS: TESTING & COMMISSIONING OF GIS	item77	28	Bays			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

Name of the Bidder/ Bidding Firm / Company :	
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**PRICE SCHEDULE**  
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Sl. No.	Item Description	Item Code / Make	Quantity	Units	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
1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
5.05	SERVICES- 400kv GIS : TESTING & COMMISSIONING OF GAS INSULATED BUS DUCT	item78	6300	MTR			0.00			0.00		0.000	0.000	INR Zero Only
5.06	SERVICES- 400kv GIS : TESTING & COMMISSIONING OF SF6 TO AIR BUSHING	item79	59	SET			0.00			0.00		0.000	0.000	INR Zero Only
5.07	SERVICES- 400kv GIS : FINAL SUCCESSFUL HV/ POWER FREQUENCY TESTING OF GIS INCLUDING ARRANGING OF HV TEST KIT ALONG WITH OPERATOR	item80	28	Bays			0.00			0.00		0.000	0.000	INR Zero Only
5.08	SERVICES- 400kv GIS : INSULATION CO-ORDINATION STUDIES FOR GIS SYSTEM	item81	1	LOT			0.00			0.00		0.000	0.000	INR Zero Only
5.09	SERVICES- 400kv GIS : TRAINING FOR GIS AT SITE	item82	2	DAY			0.00			0.00		0.000	0.000	INR Zero Only
5.10	SERVICES- 400kv GIS : TRAINING FOR GIS AT MANUFACTURER WORKS	item83	2	DAY			0.00			0.00		0.000	0.000	INR Zero Only
6.01	SERVICES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: SERVICES FOR SUPERVISION OF ERECTION OF GIS	item84	10	MANDAY			0.00			0.00		0.000	0.000	INR Zero Only
6.02	SERVICES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: SERVICES FOR TESTING & COMMISSIONING OF GIS	item85	10	MANDAY			0.00			0.00		0.000	0.000	INR Zero Only
6.03	SERVICES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS ERECTION SUPERVISION TEAM	item86	2	Set			0.00			0.00		0.000	0.000	INR Zero Only
6.04	SERVICES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS TESTING & COMMISSIONING TEAM	item87	2	Set			0.00			0.00		0.000	0.000	INR Zero Only
6.05	SERVICES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: DEMOBILIZATION & REMOBILIZATION CHARGES OF HV TEST KIT ALONG WITH OPERATOR	item88	1	Lot			0.00			0.00		0.000	0.000	INR Zero Only
7.01	GIS BAY SUPPLY: 420KV, 3150 A, 63 KA, SF6 GIS TIE BAY MODULE (WITHOUT PIR) AS PER SECTION-PROJECT, TECHNICAL SPECIFICATION	item89	4	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
7.02	GIS BAY SUPPLY: 420 KV, 3150 A, 63 KA, SF6 GIS LINE FEEDER BAY MODULE (WITHOUT PIR) AS PER SECTION- PROJECT, TECHNICAL SPECIFICATION	item90	6	SET			0.00			0.00		0.000	0.000	INR Zero Only
7.03	GIS BAY SUPPLY: 420kV, 3150 A, 63 ka, SF6 GIS ICT feederbay module as per Section-Project,Technical specification	item91	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
7.04	GIS SUPPLY: 420KV, 3150A, 63KA SF6 TO AIR BUSHING INCLUDING SUPPORT STRUCTURE	item92	18	SET			0.00			0.00		0.000	0.000	INR Zero Only
7.05	GIS SUPPLY: Controlled Switching Device for 420 kV, 3-ph Circuit Breaker	item93	4	SET			0.00			0.00		0.000	0.000	INR Zero Only
7.06	GIS SUPPLY: 420KV, 3000A, 63KA, SINGLE PHASE, SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONG WITH ASSOCIATED SUPPORT STRUCTURE, ETC. AS PER TECHNICAL SPECIFICATION	item94	1620	M			0.00			0.00		0.000	0.000	INR Zero Only
7.07	GIS SUPPLY: 420KV, 4000A, 63KA GIS BUSBAR MODULE EXTENSION	item95	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
7.08	GIS SUPPLY: 420KV, 4000A, 63KA, SINGLE PHASE SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONG WITH ASSOCIATED SUPPORT STRUCTURE	item96	100	M			0.00			0.00		0.000	0.000	INR Zero Only
7.09	GIS SUPPLY: Local Control Cubicles (LCC)	item97	12	Set			0.00			0.00		0.000	0.000	INR Zero Only
8.01	PORTABLE PARTIAL DISCHARGE MEASUREMENT TEST KIT WITH ALL NECESSARY ACCESSORIES, INDUSTRIAL GRADE LAPTOP AND LICENSED SOFTWARE AS PER TECHNICAL SPECIFICATION.	item98	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
8.02	SF6 GAS ANALYZER	item99	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
8.03	SF6 GAS LEAKAGE DETECTOR	item100	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 5552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

Name of the Bidder/ Bidding Firm / Company :	
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Sl. No.	Item Description	Item Code / Make	Quantity	Units	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
1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
8.04	SF6 GAS PROCESSING UNIT FOR 400KV GIS STATION	item101	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.01	GIS SPARES: 400KV GIS-SF6 GAS PRESSURE RELIEF DEVICE ASSEMBLY OF EACH TYPE	item102	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.02	GIS SPARES: SF6 PRESSURE GAUGE CUM SWITCH/ DENSITY MONITORS AND PRESSURE SWITCH AS APPLICABLE, OF EACH TYPE-400KV GIS	item103	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.03	GIS SPARES: COUPLING DEVICE FOR PRESSURE GAUGE CUM SWITCH FOR CONNECTING GAS HANDLING PLANT OF EACH TYPE-400KV GIS	item104	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.04	GIS SPARES: RUBBER GASKETS, "O" RINGS AND SEALS FOR SF6 GAS FOR GIS ENCLOSURE OF EACH TYPE-400KV GIS	item105	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.05	GIS SPARES: 400KV GIS-MOLECULAR FILTER FOR SF6 GAS WITH FILTER BAGS (5% OF TOTAL WEIGHT)	item106	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.06	GIS SPARES: CONTROL VALVES FOR SF6 GAS OF EACH TYPE- 400KV GIS	item107	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.07	GIS SPARES: 400KV GIS-SF6 GAS (5% OF TOTAL GAS QUANTITY)	item108	1	LOT			0.00			0.00		0.000	0.000	INR Zero Only
9.08	GIS SPARES: LOCKING DEVICE TO KEEP THE DIS-CONNECTORS (ISOLATORS) AND EARTHING/ FAST EARTHING SWITCHES IN CLOSE OR OPEN POSITION IN CASE OF REMOVAL OF THE DRIVING MECHANISM- 400KV GIS	item109	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.09	GIS SPARES: UHF PD SENSORS OF EACH TYPE ALONG WITH BNC CONNECTOR FOR 420KV GIS	item110	3	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
9.10	GIS SPARES: 400KV GIS-SUPPORT INSULATORS (GAS THROUGH) OF EACH TYPE (COMPLETE WITH METAL RING ETC.) ALONG WITH ASSOCIATED CONTACTS AND SHIELDS	item111	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.11	GIS SPARES: 400KV GIS-GAS BARRIERS OF EACH TYPE (COMPLETE WITH METAL RING ETC.) ALONG WITH ASSOCIATED CONTACTS AND SHIELDS	item112	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.12	GIS SPARES: 400KV GIS- 3150A SF6 TO AIR BUSHING COMPLETE IN ALL RESPECT	item113	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.13	GIS SPARES: LCC SPARES - AUX. RELAYS, CONTACTORS, PUSH BUTTONS, SWITCHES, LAMPS, ANNUNCIATION WINDOWS, MCB, FUSES, TIMERS, TERMINAL BLOCKS ETC. OF EACH TYPE & RATING-400KV GIS	item114	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.14	GIS SPARES: 400KV GIS-ONE POLE OF 3150A CIRCUIT BREAKER WITHOUT PIR WITH INTERRUPTER, MAIN CIRCUIT, ENCLOSURE AND OPERATING MECHANISM COMPLETE IN ALL RESPECT	item115	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.15	GIS SPARES: TRIP COIL ASSEMBLY WITH RESISTOR FOR 420KV GIS CIRCUIT BREAKER (AS APPLICABLE)	item116	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.16	GIS SPARES: CLOSING COIL ASSEMBLY WITH RESISTOR FOR 420KV GIS CIRCUIT BREAKER (AS APPLICABLE)	item117	3	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.17	GIS SPARES: RELAYS, POWER CONTACTORS, PUSH BUTTONS, TIMERS & MCBS ETC. (AS APPLICABLE) OF EACH TYPE FOR 400KV GIS CIRCUIT BREAKER	item118	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.18	GIS SPARES: AUXILIARY SWITCH ASSEMBLY OF EACH TYPE FOR 420KV GIS CIRCUIT BREAKER	item119	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.19	GIS SPARES: 400KV GIS CIRCUIT BREAKER-OPERATION COUNTER	item120	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
9.20	GIS SPARES: 400KV GIS CIRCUIT BREAKER-HYDRAULIC OPERATING MECHANISM WITH DRIVE MOTOR (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	item121	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.21	GIS SPARES: HYDRAULIC FILTER OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	item122	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.22	GIS SPARES: 400KV GIS CIRCUIT BREAKER- HOSE PIPE OF EACH TYPE (AS APPLICABLE) (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	item123	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.23	GIS SPARES: 400KV GIS CIRCUIT BREAKER - N2 ACCUMULATOR (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	item124	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.24	GIS SPARES: VALVES OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	item125	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.25	GIS SPARES: PIPE LENGTH (COPPER & STEEL) OF EACH SIZE & TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)- 400KV GIS CIRCUIT BREKAER	item126	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.26	GIS SPARES: PRESSURE SWITCHES OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)- 400KV GIS CIRCUIT BREKAER	item127	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.27	GIS SPARES: PRESSURE GAUGE WITH COUPLING DEVICE OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)- 400KV GIS CIRCUIT BREKAER	item128	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.28	GIS SPARES: 400KV GIS CIRCUIT BREAKER-HYDRAULIC OIL (5% OF TOTAL OIL QUANTITY) (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)	item129	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

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1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
9.29	GIS SPARES: PRESSURE RELIEF DEVICE OF EACH TYPE (FOR HYDRAULIC OPERATED MECHANISM, IF APPLICABLE)- 400KV GIS CIRCUIT BREKAER	item130	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.30	GIS SPARES: 400KV GIS CIRCUIT BREAKER-COMplete SPRING OPERATING MECHANISM INCLUDING CHARGING MECHANISM ETC. (FOR SPRING OPERATED MECHANISM, IF APPLICABLE)	item131	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.31	GIS SPARES: 400KV GIS CIRCUIT BREAKER-COMplete HYDRAULIC- SPRING OPERATING MECHANISM INCLUDING CHARGING MECHANISM ETC. (FOR HYDRAULIC-SPRING OPERATED MECHANISM, IF APPLICABLE)	item132	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.32	GIS SPARES: PRESSURE SWITCHES OF EACH TYPE FOR 420KV GIS CIRCUIT BREAKER (FOR HYDRAULIC SPRING OPERATED MECHANISM, IF APPLICABLE)	item133	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.33	GIS SPARES: PRESSURE GAUGE WITH COUPLING DEVICE OF EACH TYPE (FOR HYDRAULIC-SPRING OPERATED MECHANISM, IF APPLICABLE)-400KV GIS CIRCUIT BREKAER	item134	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.34	GIS SPARES: 400KV GIS- SINGLE PHASE OF 3150A DISCONNECTOR SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	item135	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.35	GIS SPARES: 400KV GIS- SINGLE PHASE MAINTENANCE EARTHING SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	item136	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.36	GIS SPARES: GIS SPARES: GIS SPARES: 400KV GIS - SINGLE PHASE FAST EARTHING SWITCH INCLUDING MAIN CIRCUIT, ENCLOSURE, DRIVING MECHANISM AND SUPPORT INSULATOR ETC., COMPLETE IN ALL RESPECT	item137	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

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NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	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
1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
9.37	GIS SPARES: OPEN/ CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS DISCONNECTOR SWITCH	item138	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.38	GIS SPARES: OPEN/ CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS MAINTENANCE EARTH SWITCH	item139	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.39	GIS SPARES: OPEN/ CLOSE CONTACTOR ASSEMBLY, TIMERS, KEY INTERLOCK, INTERLOCKING COILS, RELAYS, PUSH BUTTONS, INDICATING LAMPS, POWER CONTACTORS, RESISTORS, FUSES, MCBS & DRIVE CONTROL CARDS ETC. (AS APPLICABLE) ONE OF EACH TYPE FOR ONE COMPLETE MOM BOX FOR 400KV GIS FAST EARTHING SWITCH	item140	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.40	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR DISCONNECTOR- 400KV GIS	item141	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.41	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR MAINTENANCE EARTHING SWITCH- 400KV GIS	item142	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.42	GIS SPARES: LIMIT SWITCHES AND AUX. SWITCHES FOR ONE COMPLETE MOM BOX FOR FAST EARTHING SWITCH (IF APPLICABLE)- 400KV GIS	item143	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.43	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS DISCONNECTOR SWITCH	item144	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.44	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS MAINTENANCE EARTH SWITCH	item145	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

Name of the Bidder/ Bidding Firm / Company :	
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**PRICE SCHEDULE**  
(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant 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 #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	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
1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
9.45	GIS SPARES: DRIVE MECHANISM FOR 400KV GIS FAST EARTHING SWITCH	item146	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.46	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS DISCONNECTOR SWITCH	item147	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.47	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS MAINTENANCE EARTH SWITCH	item148	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.48	GIS SPARES: MOTOR FOR DRIVE MECHANISM FOR 400KV GIS FAST EARTHING SWITCH	item149	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.49	GIS SPARES: 400KV GIS- SINGLE PHASE OF CURRENT TRANSFORMER (3 CORES, TYPE-CTA) WITH ASSOCIATED ENCLOSURE AND PRIMARY CONDUCTOR COMPLETE IN ALL RESPECT	item150	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.50	GIS SPARES: 400KV GIS- SINGLE PHASE OF CURRENT TRANSFORMER (2 CORES, TYPE-CTB) WITH ASSOCIATED ENCLOSURE AND PRIMARY CONDUCTOR COMPLETE IN ALL RESPECT	item151	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
9.51	GIS SPARES: Controlled Switching Device for 420 kV, 3-ph Circuit Breaker	item152	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
10.01	SPARES- 400KV GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SUPPLY ITEMS- GIS METALLIC ENCLOSURE	item153	50	KG			0.00			0.00		0.000	0.000	INR Zero Only
10.02	SPARES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SUPPLY ITEMS- EXPANSION BELLOWS/ JOINTS	item154	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
10.03	SPARES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SUPPLY ITEMS-TEE BEND	item155	1	SET			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

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 relevant 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 #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	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
1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
10.04	SPARES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SUPPLY ITEMS- L BEND	item156	1	SET			0.00			0.00		0.000	0.000	INR Zero Only
11.01	SERVICES- 400kv GIS: SUPERVISION OF ERECTION OF GIS	item157	12	Bays			0.00			0.00		0.000	0.000	INR Zero Only
11.02	SERVICES- 400kv GIS: SUPERVISION OF ERECTION OF GAS INSULATED BUS DUCT	item158	1620	MTR			0.00			0.00		0.000	0.000	INR Zero Only
11.03	SERVICES- 400kv GIS: SUPERVISION OF ERECTION OF 4000A, 63KA GIS BUSBAR MODULE EXTENSION	item159	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
11.04	SERVICES- 400kv GIS: SUPERVISION OF ERECTION OF 4000A, 63KA, SINGLE PHASE SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONG WITH ASSOCIATED SUPPORT STRUCTURE	item160	100	M			0.00			0.00		0.000	0.000	INR Zero Only
11.05	SERVICES- 400kv GIS: SUPERVISION OF ERECTION OF SF6 TO AIR BUSHING	item161	18	SET			0.00			0.00		0.000	0.000	INR Zero Only
11.06	SERVICES- 400kv GIS: TESTING & COMMISSIONING OF GIS	item162	12	Bays			0.00			0.00		0.000	0.000	INR Zero Only
11.07	SERVICES- 400kv GIS : TESTING & COMMISSIONING OF GAS INSULATED BUS DUCT	item163	1620	MTR			0.00			0.00		0.000	0.000	INR Zero Only
11.08	SERVICES- 400kv GIS : TESTING & COMMISSIONING OF 4000A, 63KA GIS BUSBAR MODULE EXTENSION	item164	2	SET			0.00			0.00		0.000	0.000	INR Zero Only
11.09	SERVICES- 400kv GIS : TESTING & COMMISSIONING OF 4000A, 63KA, SINGLE PHASE SF6 GAS INSULATED BUS DUCT (GIB) OUTSIDE GIS HALL ALONG WITH ASSOCIATED SUPPORT STRUCTURE	item165	100	M			0.00			0.00		0.000	0.000	INR Zero Only
11.10	SERVICES- 400kv GIS : TESTING & COMMISSIONING OF SF6 TO AIR BUSHING	item166	18	SET			0.00			0.00		0.000	0.000	INR Zero Only
11.11	SERVICES- 400kv GIS : FINAL SUCCESSFUL HV/ POWER FREQUENCY TESTING OF GIS INCLUDING ARRANGING OF HV TEST KIT ALONG WITH OPERATOR	item167	12	Bays			0.00			0.00		0.000	0.000	INR Zero Only

Tender Inviting Authority: BHEL TBG NOIDA

Name of Work: Powergrid 5552T-400KV GIS (Jamnagar & Jam Khambhaliya)

Enquiry/NIT No: NIT\_81631\_Enquiry No. 61G2500030 dated 19-04-2024

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 #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Item Code / Make	Quantity	Units	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
1.00	2	3	4	5	13	14	15	16	20	21	51	53	54	55
11.12	SERVICES- 400kv GIS : INSULATION CO-ORDINATION STUDIES FOR GIS SYSTEM	item168	1	LOT			0.00			0.00		0.000	0.000	INR Zero Only
11.13	SERVICES- 400kv GIS : TRAINING FOR GIS AT SITE	item169	2	DAY			0.00			0.00		0.000	0.000	INR Zero Only
11.14	SERVICES- 400kv GIS : TRAINING FOR GIS AT MANUFACTURER WORKS	item170	2	DAY			0.00			0.00		0.000	0.000	INR Zero Only
12.01	SERVICES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: SERVICES FOR SUPERVISION OF ERECTION OF GIS	item171	10	MANDAY			0.00			0.00		0.000	0.000	INR Zero Only
12.02	SERVICES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: SERVICES FOR TESTING & COMMISSIONING OF GIS	item172	10	MANDAY			0.00			0.00		0.000	0.000	INR Zero Only
12.03	SERVICES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS ERECTION SUPERVISION TEAM	item173	2	Set			0.00			0.00		0.000	0.000	INR Zero Only
12.04	SERVICES- 400kv GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: DEMOBILIZATION AND REMOBILIZATION CHARGES FOR GIS TESTING & COMMISSIONING TEAM	item174	2	Set			0.00			0.00		0.000	0.000	INR Zero Only
12.05	SERVICES- GIS : REFERENCE UNIT PRICE FOR ADDITION / DELETION OF SERVICES: DEMOBILIZATION & REMOBILIZATION CHARGES OF HV TEST KIT ALONG WITH OPERATOR	item175	1	Lot			0.00			0.00		0.000	0.000	INR Zero Only
<b>Total in Figures</b>												0.000	0.000	Zero Only
<b>Total Rate in Words</b>												<b>INR Zero Only</b>		