

Substation Automation System for IOCL Panipat Project						
S.No.	Document Name	Page No.	Clause/ Point Number	Detail	Query/Deviation/Clarification	REPLY BY BHEL
Queries						
1	TB-411-510-105 SECTION-1	2 of 5	3.2	d) The FO cable requirement mentioned in BOQ is tentative. All FO cable supply and splicing/ termination is in scope of bidder as per actual requirement.	We have considered FO cable qty as per BOQ (Annexure-A), any change in quantity will be subject to mutual agreement.	Pl. follow Tender Specification Section-1, Cl. 3.2d.
2	TB-411-510-105 SECTION-1	7 of 7	Annexure-A BOQ	UPS rating	We have considered UPS rating as per BOQ (Annexure-A), any change in rating will be subject to mutual agreement.	Pl. follow Tender Specification; Minimum KVA rating mentioned in tender BOQ.
3	SECTION-2 Equipment Specification	1 of 341		Civil work	We understand that any civil work, all cable laying, system study, installation of equipments, supply of all cables are not bidder scope. Our scopes are limited to as per BOQ (Annexure-A), any change in rating & qty will be subject to mutual agreement. Please confirm.	Pl. follow Tender Specification.
4	SECTION-2 Equipment Specification	7 of 341	1.1.7.5	Relay setting	We understand that relay setting of new 220kV GIS system alone is part of bidder scope.	Relay setting of all offered relays shall be in bidder's scope.
5	SECTION-2 Equipment Specification	7 of 341	1.1.7	System study	We understand that system study is not part of bidder scope. Please confirm.	Pl. follow Tender Specification Section-2.
6	SECTION-2 Equipment Specification	22 of 341	5.12	All communication cables, control cables required for time updation shall be in bidders scope.	Supply of all cables are not part of bidder scope. Kindly confirm.	Pl. follow Tender Specification Section-2.
7	SECTION-2 Equipment Specification	22 of 341	6.1	Purchaser reserves the right to demand repetition of some or all the type test in the presence of the purchasers representative without any cost implication.	Offered Relays are type tested according to IEC. Our product design has not been changed after conduction of the type test reports & thus there has been no need to repeat the type tests. We will submit type test report for	Pl. follow Tender Specification.
8	SECTION-2 Equipment Specification	27 of 341	1	All the necessary control cablings & termination etc shall be included in bidder scope.	Supply and laying of control cables are not part of bidder scope. Our scope is based on the list of items mentioned in BOQ (Annexure-A). Please confirm.	Pl. refer Tender Specification Section-2.
9	SECTION-2 Equipment Specification	33 of 341	12	There shall be provision of 220kV and 33kV Isolator control from SACP as applicable for PR & PNCP side.	Kindly confirm the Isolator control requirement.	Pl. follow Tender Specification.
10	SECTION-2 Equipment Specification	34 of 341	A	h. push button as per scheme requirement.	Kindly share relevant schemes to consider necessary push buttons.	Pl. refer relevant Bay SLDs attached with tender specification.
11	SECTION-2 Equipment Specification	35 of 341	10	SLD shall be provided on SCAP panel.	Kindly share detailed 33kV system SLD.	Pl. refer Tender Specification Section-2 & 4.
12	SECTION-2 Equipment Specification	36 of 341		Indicate layout of SCAP	Shared drawing is not legible. Kindly share clear drawing.	Shared drawing is indicative only.
13	SECTION-2 Equipment Specification	146 of 341	1	UPS rating	We have considered UPS rating as per BOQ (Annexure-A) (2x25kVA - 1 no; 2x3kVA - 2 no's). Please confirm.	Pl. follow Tender Specification; Minimum KVA rating mentioned in tender BOQ.
14	SECTION-2 Equipment Specification	146 of 341	1	UPS Backup time	specification calls for 2 hours battery backup time, whereas data sheet calls for 60 min. back up time. Please confirm battery backup time.	Pl. refer the "Amendments by IOCL" attached with TS Section-2.
15	SECTION-2 Equipment Specification	146 of 341	1	Battery AH rating	Kindly confirm, 2x220AH battery rating is common for all the 3 ratings (2x25kVA, 2x3kVA, 2x3kVA).	Pl. refer the "Amendments by IOCL" attached with TS Section-2; AT PR & PNCP CONTROL ROOMS, the Battery AH capacity shall be calculated by bidder, meeting the actual load and specified back-up time requirement.
16	SECTION-2 Equipment Specification	150 of 341	5.2.1	UPS configuration	We understand that, 2x50% battery to be considered. Please confirm.	Pl. follow Tender Specification.
17	SECTION-2 Equipment Specification	178 of 341		Checklist HT distribution	We understand that, the indicated checklist is not applicable. Please confirm.	Pl. follow Tender Specification Section-2, as applicable for the offered items.
18	SECTION-2 Equipment Specification	179 of 341		RTF recommendation Under voltage and Bus transfer scheme (HT)	We understand that, the indicated RTF recommendation is not applicable. Please confirm.	Pl. follow Tender Specification Section-2, as applicable for the offered items.
19	SECTION-2 Equipment Specification	180 of 341		RTF checklist - UPS	We understand that, the indicated RTF checklist for UPS is not applicable. Please confirm.	Pl. follow Tender Specification Section-2, as applicable for the offered items.
20	SECTION-2 Equipment Specification	201 of 341	sl no 2	Cable differential relay.	Only supply of cable differential relay is part bidder scope. Please confirm.	Pl. refer Tender Specification Section-1 Cl. No. 3.2 i.
21	SECTION-2 Equipment Specification	264 of 341		Section-2	Section-2 document referred in corrigendum. However RFQ document does not have mentioned document. Kindly share Section-2 specification.	Pl. refer Tender Specification Section-2 (Page 30 of 341).
22	SECTION-2 Equipment Specification	296 of 321		Protection philosophy	We are considering Protection philosophy as per tender SLD & specification. In case of any changes or any coordination required with state transmission authorities is not part of bidder scope. Please confirm.	Pl. follow Tender Specification.
23	SECTION-2 Equipment Specification	311 of 341		Section-2 Part A	Section-2, Part-A document referred in corrigendum. However RFQ document does not have mentioned document. Kindly share Section-2, Part-A specification.	Pl. refer the "Amendments by IOCL" attached with BHEL TS Section-2; The complete original text as per original IOCL specification and the complete revised text of the referred clause are mentioned in Page 311 of 341 of BHEL TS Section-2.
24	SECTION-2 Equipment Specification	311 of 341		All approval & certification	Any approval & certification with state transmission authorities is not part of bidder scope. Please confirm.	Pl. follow Tender Specification.
25	SECTION-2 Equipment Specification	317/321 of 341		Section-1 chapter-2	Section-1, chapter-2 document referred in corrigendum. However RFQ document does not have mentioned document. Kindly share Section-1, chapter-2 specification.	Pl. refer the "Amendments by IOCL" attached with BHEL TS Section-2 (Page 298 of 341).
26	SECTION-2 Equipment Specification	324 of 341		Fault limiting device	We understand that, Fault limiting device is not part of bidder scope. Please confirm.	Noted.
27	SECTION-2 Equipment Specification	325 of 341		SS-28 Detailed SLD	Shared drawing is not legible. Kindly share clear drawing.	Shared drawing is indicative only.
28	SECTION-2 Equipment Specification	326 of 341		AIS LIB Panel	We understand that, LIB Panel is not part of bidder scope. Please confirm.	Noted; For details of scope division, pl. refer Tender Specification Section-1, Cl. No. 3.2 i.
29		General		Power cables	Supply and laying of power cables (HV/LV) are not part of bidder scope. Our scope is based on the list of items mentioned in BOQ (Annexure-A). Please confirm.	Pl. follow Tender Specification Section-2.
30		General		33kV Control room	Kindly share 33kV PR & PNCP building layout, where SCAP panel will be mounted.	Pl. refer the "Amendments by IOCL" attached with TS Section-2.

14/10/2020
(MANAGER/TBEM)

SR. DAM (TBEM)

AGM (TBEM)

3121011

BHEL TBG NIT 54736_50Q2100216			
Supply & Services for Substation Automation System for IOCL Panipat Project			
Sr. No.	Clause reference	Bidder's Queries	BHEL Response
1	clause 3, Section 1, sl No.(g)	Please share the distance between substation gantry & relay panels even though the total FO cable length is provided in BOQ.	Pl. refer Trench Layout attached with TS Section-4.
2	As per clause 3, Section I, sl No.(j)	Bidder is required to visit site to collect the details. GE request BHEL to share the complete required details due to the present situation.	Pl. follow Tender Specification Section-1, Cl. No. 3.2 j.
3	clause 3, section 1 Sl. No. (i)	Please share 33kV New LIB/ 33kV Existing Switch Gear SLD as mentioned under clause 3, section 1 Sl. No. (i)	Pl. follow Tender Specification Section-2 & KSLD in Section-4.
4	Sl. No.33 at PR SS-63 & Sl. No. 34 at PNCP SS-9 of Annexure A (Bill of Quantities) Section 1	Please provide the quantity of BCUs to be supplied under Sl. No.33 at PR SS-63 & Sl. No. 34 at PNCP SS-9 of Annexure A (Bill of Quantities) Section 1	Pl. refer the "Detailed Description" column of TS Section-1, Annexure-A.
5		Please share the distance between local end and remote end where Line differential relay is required	Tentative Line Length shall be 35 km; Exact line length shall be informed during detailed engineering.
6	Part C of chapter 9, page 140 of 341, RTU for ECS system shall be procured from existing OEM M/s. Emerson process Management.	There is no separate line item in Annexure A (Bill of Quantities) Section 1. Hence this is excluded from scope of Bidder. Please confirm. If required GE make shall be supplied. Please confirm	Regarding ECS Interfacing, pl. refer the "Amendments by IOCL" attached with TS Section-2.
7	Part C of chapter 9,	Please confirm that integration of RTU supplied for LMS with existing Emerson Make & ABB Make is excluded from scope of bidder. Only hardwired and soft signals shall be provided till TB. Integration will be in scope of BHEL.	Regarding ECS Interfacing, pl. refer the "Amendments by IOCL" attached with TS Section-2.
8	Part C of chapter 9, page 142 of 341	please confirm that any hardware and I/O cards for interfacing at PR ECS end is excluded from bidder scope.	Regarding ECS Interfacing, pl. refer the "Amendments by IOCL" attached with TS Section-2.
9	Sl no.94, (i) of Annexure A (Bill of Quantities) Section 1	Please share the details of remote end SAS for integrating the remote end line differential relay as per Sl no.94, (i) of Annexure A (Bill of Quantities) Section 1	Pl. follow Tender Specification Section-1, Cl. No. 3.2 g & j.
10	As per technical corrigendum point Sl No.139 part 7	please confirm bidder has to supply 8 Nos. of Laptops.	Pl. refer TS Section-1, Annexure-A.
11	As per technical corrigendum point Sl. No.141 part 7	please confirm bidder can consider high impedance based bus bar protection scheme.	Pl. refer the "Amendments by IOCL" attached with TS Section-2; As per the amendments and as suitable for the primary system, Distributed Bus Zone Protection (Low Impedance Type Only) to be offered.
12	As per Section 2, chapter 5, clause 17.(B).1 & technical corrigendum point Sl. No. 144 part 7	please confirm bidder has to consider mosaic panels for SCAP	Pl. follow Tender Specification.
13	As per Section 3, Chapter 9, Part A, clause 4.1.2 & technical corrigendum point Sl. No. 45 part 6	please confirm bidder has to consider 10 display units. Please confirm these display units are 32" LED Monitors.	Pl. refer TS Section-1, Annexure-A & Section-2.
14	As per Section 2, Chapter 5, clause 5.1.9 page 11 of 341 Main I & Main II protection shall be of different make	We request BHEL accept Main I & Main II of same make with different hardware/manufacturing platform as accepted in utilities like PGCIL, NTPC, HPPTCL.	Pl. follow Tender Specification.

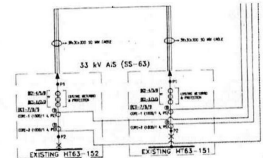
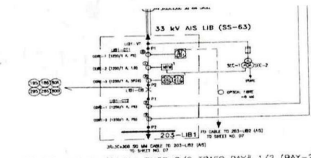
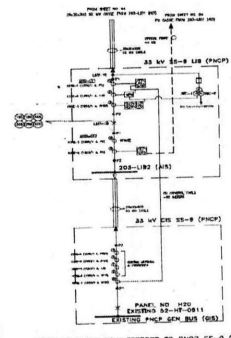
[Signature]

[Signature]
14/10/2020

15	16.As per section 2, chapter 5, page 50 of 341 & technical corrigendum point Sl. No. 52 part 6,	one bus bar protection shall be provided for each main bus for 220KV Double bus arrangement and no common components shall be used for differential schemes of two sections. For double bus arrangement without sectionaliser, this is practically not possible. Please confirm bidder can consider one bus bar protection scheme common for both the sections.	Pl. refer TS Section-1, Annexure-A (quantity mentioned in Sl. No. 6) & Section-2.
16		Please share the soft copy of all schedules, data sheets in excel or word format	Soft copy in pdf format is available in tender document.

Vinith Kapil

14/10/2020

Sl.no	Clause	Description	Pre-bid queries.	BHEL Replies
A.	General		Request you to share the control hierarchy for the complete system, As per control provision is there from switchgear, SCAP at PR, SCAP at PNCP, BCU at CRP, SAS & LMS.	Pl. follow Tender Specification Section-2.
1	BOQ, Sr.no.:1	SUPPLY- SUBSTATION AUTOMATION SYSTEM : 220KV, LINE BAY, PROTECTION PANEL	Please share the line length of 220KV line feeder.	Tentative Line Length shall be 35 km, Exact line length shall be informed during detailed engineering.
2	BOQ, Sr.no.:2	SUPPLY- SUBSTATION AUTOMATION SYSTEM : 220/34.5 KV, 50/65 MVA TRANSFORMER PROTECTION PANEL FOR PR O/G BAY (FOR BOTH HV & LV SIDE)  APPLICABLE FOR 220/34.5KV PR O/G TRAFO BAY# 1/2 (BAY-202 & 207)	As per SLD We understand that the LV side back up OC EF protection and LV side BCU functionality is already taken care in existing system. As there is a cable connecting from transformer to 33 KV switchgear, cable diff protection may be required. Same has not called in SLD & BOQ. We assume this has been taken care as part of switchgear scope. We understand that LV side Transformer quantity is 2 no's. Kindly confirm.	Pl. follow Tender Specification Section-1, Cl. No. 3.2.1.
3	BOQ, Sr.no.:3	SUPPLY- SUBSTATION AUTOMATION SYSTEM : 220/34.5 KV, 50/65 MVA TRANSFORMER PROTECTION PANEL FOR PNCP O/G BAY (FOR BOTH HV & LV SIDE)  APPLICABLE FOR 220/34.5KV PNCP O/G TRAFO BAY# 1/2 (BAY-203 & 208)	As per SLD We understand that the LV side back up OC EF protection, Cable differential and LV side BCU functionality is being taken care by 33KV switchgear vendor. We understand that LV side Transformer quantity is 2 no's. Kindly confirm.	Pl. follow Tender Specification Section-1, Cl. No. 3.2.1.
3.1	SLD	 APPLICABLE FOR 33KV FEEDERS TO PNCP SS-B (203-LB1/2 & 208-LB1/2)	As per SLD We understand that the LV side back up OC EF protection, Cable differential and LV side BCU functionality is being taken care by 33KV switchgear vendor.	Pl. follow Tender Specification Section-1, Cl. No. 3.2.1.
6	BOQ, Sr.no.:6	SUPPLY- SUBSTATION AUTOMATION SYSTEM : 220KV, BUSBAR PROTECTION RELAY PANELS (SINGLE) - 2no's	Type of Busbar is generally selected based on the application criteria as below for solution positioning. Centralized busbar protection system is applied, where the substation is GIS type or AIS type with CRPs are mounted in central control room. The bus bar protection relays will be mounted in separate panel along with trip relays for all the bays at control room. Following are the advantages of Centralized busbar protection - Better availability of protection due to less components involved, namely Busbar protection relays. - Busbar protection is not dependent on any communication infrastructure and no scenario of communication failure. - Addition of future bays do not need any additional hardware in the busbar relay and can be carried out without OEM's support. - Ease of testing the busbar protection since all terminations pertaining to busbar protection are in one location. Wherein, De-centralized busbar protection system, where the substation is AIS type and CRPs are mounted in outdoor Kiosks: The Central Processing Unit of bus bar protection to be mounted in separate panel & located in central control room and bay Unit of bus bar protection scheme will be housed respective bay CRP for better	Pl. refer the "Amendments by IDCL" attached with TS Section-2; As per the amendments and as suitable for the primary system, Distributed Bus Zone Protection (Low Impedance Type Only) to be offered.
10	BOQ, Sr.no.:13	SUPPLY- SUBSTATION AUTOMATION SYSTEM : SYNCHRONISING TROLLEY Qty: 4 no's	Kindly elaborate. Operational requirement of 4 no's of synchronizing trolley.	Pl. quote as per TS Section-1, Annexure-A.
11	BOQ, Sr.no.:14	SUPPLY- SUBSTATION AUTOMATION SYSTEM : ENERGY METERING PANEL	Kindly furnish the make / model details of energy meters to be consider along with quantity.	Pl. refer TS Section-1 (Cl. No. 3.2 k & Annexure-A) & Section-2.
13	BOQ, Sr.no.:30	SUPPLY- SUBSTATION AUTOMATION SYSTEM : 33KV CABLE DIFFERENTIAL PROTECTION RELAY (87CD1) (ALONG WITH NECESSARY PATCH CORDS & LIUS) - 4 no's	We understand that, our scope covers only loose supply of 87CD1 protection relay at remote end along with necessary patch cards & LIU. Further mounting, wiring, testing & commissioning and integration scope is included.	Pl. follow Tender Specification Section-1, Cl. No. 3.2.1.
14	BOQ, Sr.no.:31	SUPPLY- SUBSTATION AUTOMATION SYSTEM : 33KV CABLE DIFFERENTIAL PROTECTION RELAY (87CD2) (ALONG WITH NECESSARY PATCH CORDS & LIUS) - 2 no's	We understand that, our scope covers only loose supply of 87CD2 protection relay at remote end along with necessary patch cards & LIU. Further mounting, wiring, testing & commissioning and integration scope is included.	Pl. follow Tender Specification Section-1, Cl. No. 3.2.1.
15	BOQ, Sr.no.:32	SUPPLY- SUBSTATION AUTOMATION SYSTEM : 220KV, BAY CONTROL UNIT - 13no's (With Redundant RTU Cards & Redundant Power Supply Units)	We are getting total count 11 no's. Line - 2no's, Trafo - 4 no's, Spare feeder - 4no's, Bus coupler - 1no' Kindly recheck & confirm and quantity. Since we are offering Numerical type BCU for each bay, Redundant RTU Cards & Redundant Power Supply Units are not applicable for this project. Kindly confirm.	Pl. quote as per TS Section-1, Annexure-A & Section-2. Also, pl. refer Note No. 4 of TS Section-1, Annexure-A.

Vinodh

14/10/2020

16	BOQ, Sr.no. :32	SUPPLY- SUBSTATION AUTOMATION SYSTEM : BAY CONTROL UNIT (BCU) FOR SAS INTEGRATION OF 33KV LIBS & 33KV EXISTING SWITCHGEAR I/C BAYS (ASSOCIATED WITH 220KV GIS SYSTEM) AT PR SS-63. Qty : 1no. (along with required number of DI/ DO/ AI/ CT/PT Input Cards in BCUs, Standalone Panels, Ethernet Switches, Patch Cords, LIUs etc. as required)	As there will be a bay wise BCU for 220KV bays being supplied as part of our scope and the required BCU for 33KV being supplied by respective switchgear vendor. we don't force the requirement of RTU for interfacing 33KV & 220KV bays to SAS system. These BCUs will be directly reporting to SAS on IEC61850 through station LAN.	Pl. follow Tender Specification Section-1, Cl. No. 3.2.1.
17	BOQ, Sr.no. :32	SUPPLY- SUBSTATION AUTOMATION SYSTEM : BAY CONTROL UNIT (BCU) FOR SAS INTEGRATION OF 33KV LIBS & 33KV EXISTING SWITCHGEAR I/C BAYS (ASSOCIATED WITH 220KV GIS SYSTEM) AT PNCP SS-9. Qty : 1no. (along with required number of DI/ DO/ AI/ CT/PT Input Cards in BCUs, Standalone Panels, Ethernet Switches, Patch Cords, LIUs etc. as required)	As there will be a bay wise BCU for 220KV bays being supplied as part of our scope and the required BCU for 33KV being supplied by respective switchgear vendor. we don't force the requirement of RTU for interfacing 33KV & 220KV bays to SAS system. These BCUs will be directly reporting to SAS on IEC61850 through station LAN.	Pl. follow Tender Specification Section-1, Cl. No. 3.2.1.
24	BOQ, Sr.no. :94	a) Integration of IEC 61850-based monitoring equipments (mounted on Transformers Units/ GIS) & 33KV Bay relays/ MFIM with the offered SAS as per section-1. Qty : 11	request you to provide the protection IED's & meters to be integrated to SAS system.	IED/ Meter drawings/ GTP shall be made available to successful bidder during detailed engineering. Pl. quote as per TS Section-1.
27	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy.	Recording instruments	Recording instruments is not applicable.	Pl. refer the "Amendments by IOCL" attached with TS Section-2.
28	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 1.1.3, Page no. 6 of 341	Bidder shall design the complete protection philosophy in line with HVPNL grid codes, CEA requirements, Requirement of OEM of different components & as per applicable standards.	Do we need to offer 220KV line bays as per HVPNL standard. If yes, kindly share the technical spec. And confirm approval authority for all the bays of 220KV system.	Pl. follow present Tender Specification.
29	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy.	Installation, Testing and commissioning of these panels at site including all associated cabling	Cabling not in APPSIL scope	Noted. Bidder to follow Tender Specification Section-2.
32	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy.	Grid islanding facility	As per Clause no. 6 : 220KV protection philosophy, we have offered grid islanding panel separately as per BOQ. Not offered as part of relay.	Pl. follow Tender Specification.
33	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 1.1.11, Page no. 8 of 341	Energy Metering Facility- Special ABT meter of 0.25 class shall be provided as per specification and requirement of HVPNL. Both main and check meters with CMRI facility to be provided. One proper energy meter room to be provided near GIS switchgear in sub-station very near to the CT & PT system. The guidelines of HVPNL is attached as annex- 5-3/C-5/1.	Kindly share the make / model no of ABT meter	Pl. refer TS Section-2.
34	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 1.1.12, Page no. 8 of 341	1.1.12 All site work including supply of all associated materials like instrument transformers (CT, PT), control cables, power cables all kind of OFC cables, communication cables, its installation shall be in bidders scope. This also includes supply of instrument transformers, protection relays, control accessories, switches, analog/digital meters, control cables, OFC cables, installation and commissioning at concerned 33 KV side switchgears also.	Since the requirement is completely boughtout item for us. Will exclude the same from our scope.	Pl. follow Tender Specification.
35	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 1.1.13, Page no. 8 of 341	Reliability recommendations as detailed in Chapter-14 related with protection and control system shall be included in the design of protection and control system.	Kindly elaborate the requirement.	Pl. refer TS Section-2.
36	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.2.3.7, Page no. 12 of 341	Bay wise Bay Control Unit* i.e. BCU, Breaker control switch, Energy meter, Analog & Digital Meters, Numerical protective relays as required and as per IOCL approved drawings along with required Auxiliary / Multiplication / Tripping / Supervision Relays & Push Buttons shall be accommodated in Control & Protection Panels for 220KV Bays.	IOCL approved drawings are not provided. Hence this clause is not applicable.	Bidder to quote as per Tender Specification. During detailed engineering, successful bidder shall prepare & submit the drawings to IOCL for approval.
37	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.5, Page no. 14 of 341	Panel Internal Wiring	1.5sqmm for control and PT circuits 1.5sqmm for Signal and alarms 2.5sqmm for CT connections. The copper wires are multi stranded with grey PVC insulation of 600 Volt grade	Pl. follow Tender Specification.
38	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.10, Page no. 17 of 341	Mounting	Recorders are not applicable	Pl. refer the "Amendments by IOCL" attached with TS Section-2.
39	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.10.7, Page no. 18 of 341	Panels shall be matched with other panels in the control room in respect of dimensions, colour, appearance and arrangement of equipment on the front.	Due to non-availability of Existing station CRP drawings. Any changes in offered dimension will have suitable price impact.	Pl. follow Tender Specification.
40	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.10.1, Page no. 18 of 341	Measuring and recording instruments , 1. Microprocessor type : Separate digital type of meters to be provided in each of the bays in Relay Panel for 220KV for comprehensive measurement of electrical parameters. 2. Conventional type : Separate analogue meters shall be provided, wherever applicable. All analogue instruments shall be of square pattern, 96 x 96 mm, flush mounted type. Instruments shall be provided wherever specified in the data sheet. The accuracy class for all instruments shall be 1.0 as per IS: 1248.	Since we are offering BCU based control and relay panels. This clause is not applicable for 220KV CRP. Kindly confirm the scope.	Pl. refer the "Amendments by IOCL" attached with TS Section-2.

Vinodhapatil

14/10/2020

41	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.10.4, Page no. 18 of 341	4. Auxiliary equipment - Alstom make	We will offer APPSIL make Auxiliary relays, Tripping relays and latching type relays only.	PI. refer the "Amendments by IOCL" attached with TS Section-2.
42	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.11.6, Page no. 19 of 341	All relays must have software based programming facilities using PSUs/ block logics. All logics can be developed and modified at site with the help of laptop/HMI's.	Since same is not called in BOQ. Laptop/HMI's are not part of APPSIL scope. Please confirm	PI. follow TS Section-1, Annexure-A.
43	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.11.9, Page no. 19 of 341	b) All kinds of communications and protocol converters minimum 5 Nos. of each type shall be provided.	Offered IED's are communicating on IEC61850 communication protocol. Protocol converters are not required / applicable.	PI. follow Tender Specification.
44	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.11.16, Page no. 20 of 341	c. Laptops (Minimum: 2 Nos.) shall be of brand new latest version of windows operating system of following specifications:	C. Not offered. Since requirement is not called in present scope BOQ.	PI. follow TS Section-1, Annexure-A.
45	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy.	Complete Relay setting calculation of all proposed protection with its justification shall be submitted by bidder during detail designing stage for approval of IOCL. OEM endorsement is also required for protection setting specific to equipments.	Our scope will be limited for providing relay setting calculation for Main Protections. Relay co-ordination (upstream / down stream), system studies, network studies are not in our scope.	Noted; PI. follow Tender Specification.
46	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.12, Page no. 22 of 341	TIME SYNCHRONISATION EQUIPMENT:	Time stamp on SNTP port.	PI. follow Tender Specification.
47	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 5.13, Page no. 22 of 341	Energy Meter:	Kindly share the make / model no of ABT Energy meter with quantity.	PI. refer TS Section-1 (Cl. No. 3.2 k & Annexure-A) & Section-2.
50	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 16, Page no. 27 of 341	SPECIFICATIONS FOR CRITICAL SCHEMES: 2. 33kV Downstream Breaker: The operation of the 33kV breakers including synchronization shall be possible from SCADA/SCAP both. Provision of SCAP is also included in the scope of tender, as per specifications given elsewhere. The SCAP shall be in continuation with the generator control panel situated in CPP control room. The necessary civil work for modification of existing room to include this SCAP shall also be in scope of the contractor only. 3. RTF chapter applicable for protection, distribution concept and auto changeover scheme is attached as Section-3 Chapter-14.	Required civil work is excluded from the scope. 3. please provide the detail requirement of RTF chapter.	Noted; PI. follow TS Section-2.
51	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 17, Page no. 32 of 341	Auto Mode Corresponding Bus will be Charged, Selector Switch will be in Auto selection- Auto close command will be generated through a Auto synchronizer relay installed at SCAP, which shall give close command along-with checking Synch condition through a check synch. Relay & necessary interlocks pertaining to synch. Condition	Auto sync is applicable for Gen CB. hence not offered Auto synchronizer relay for normal feeders. Offered synchronising feature as part of BCU relay.	PI. follow TS Section-2.
53	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 17, Page no. 32 of 341	SCAP PANEL REQUIREMENTS: 6) SCAP Panel at PR shall have facility of synchronisation for following feeders: a) 220 KV Line Incomers: 2 Nos b) 220 KV/33KV Power Transformers O/G feeders: 8 Nos c) 33KV side Generation Bus Incomer feeders: 6 Nos d) 220 KV Bus Coupler Panel: 1 No. e) 33KV LIB feeders - 2 no's	Quantity to be re-checked b) 220 KV/33KV Power Transformers O/G feeders: 2 Nos not 8no's c) 33KV side Generation Bus Incomer feeders: 6 Nos: Kindly elaborate the requirement. we understand that supply of CRP is not in present scope. e) 33KV LIB feeders - 2 no's: We understand that this is LV side of Transformer CRP.	PI. refer the "Amendments by IOCL" attached with TS Section-2.
54	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 17, Page no. 33 of 341	7) SCAP Panel at PNC shall have facility of synchronisation for following feeders: a) 33KV side Transformer feeders: 4 Nos b) 33KV LIB Feeders - 2no's	Quantity to be re-checked a) 33KV side Transformer feeders: 4 Nos, Kindly elaborate the requirement. we understand that supply of CRP is not in present scope. b) 33KV LIB Feeders - 2no's: We understand that this is LV side of Transformer CRP.	PI. refer the "Amendments by IOCL" attached with TS Section-2.
56	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 17, Page no. 33 of 341	There shall be portable type synchronising trolley provision for synchronising the feeders at both SCAP panels. h) One trolley shall be provided in each control room (PR & PNC) and One spare trolley shall also be provided. i) In case of auto-synchronising through SCADA, Interlock shall be provided from hardwired check synch. relays.	Auto sync is applicable for Gen CB. hence not offered Auto synchronizer relay for normal feeders. Offered synchronising feature as part of BCU relay.	PI. follow TS Section-2.
57	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy. Clause no. 20, Page no. 34 of 341	B. Construction Specification: The panel will be free standing Unit with mosaic accessories	We understand that, this clause is applicable only for SCAP panel.	Noted; PI. follow TS Section-2.

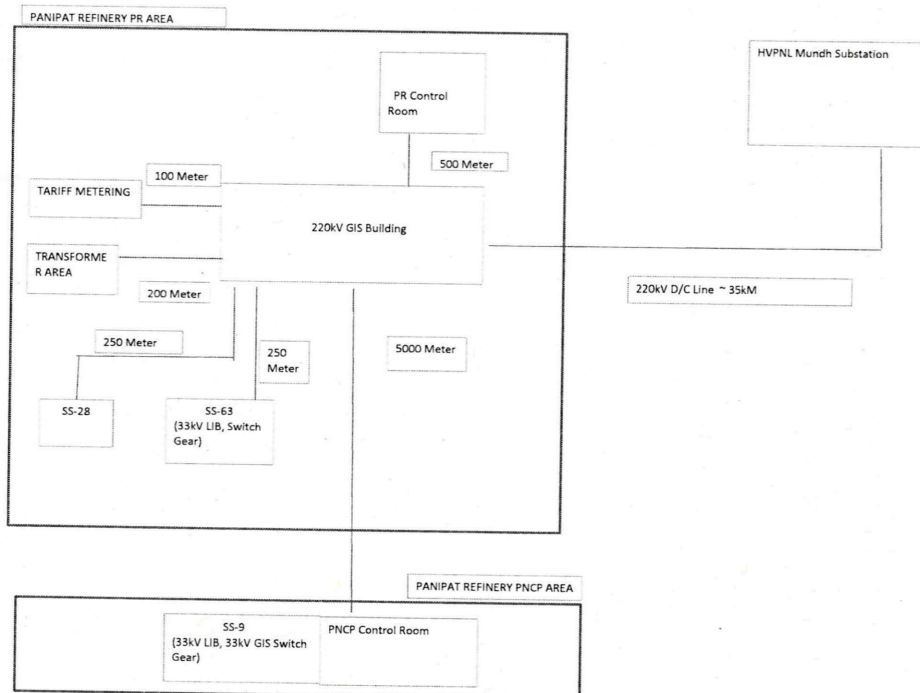
Handwritten signature

Handwritten signature
14/10/2020

59	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy, Clause no., Page no. 39 of 341	PROTECTION SCHEME FOR LINES: a. All the zones shall have setting such that they can detect the fault on line from minimum 0.3 km to 50 km. B. IRIG-B C. reverse power relay D. Frequency Relay E. TRANSFORMER DIFFERENTIAL PROTECTION F. It shall be suitable for rated current of both 1A and 5A. G. NUMERICAL BUS BAR PROTECTION RELAYS H. To enhance security, the Bus bar Protection scheme shall have two independent measurements and tripping criteria. I. Preferably, these two criteria shall be the stabilized differential current and the phase (directional) comparison of currents in the different bays.	a. The detection of fault will be based on SRA ratios not on km. B. SNTP (All relays are with SNTP) C. Offered as inbuilt feature in back-up relay D. We assume that the grid islanding requirement is for 220KV Incomers. Confirm. E. 1. Overall SLD required. 2. Confirm the distance between CT and control room. 3. And confirm the knee point voltage to offer transformer differential. 4. Scope of 33kV CBP are excluded from our scope. 5. We have offered MAIN-I & MAIN-II concept for transformer differential protection Note : Offered Transformer differential protection relay protecting upto 33kV Cable from 220KV transformer side. If fault occurs, it will not differentiate the fault in cable or Trafo. same will be tested manually. If Provided CT burden is not matching with trafo differential, we need to offer separate relay with additional cost. F. Rated current will be either 1A or 5A, not both. G. Offered low impedance centralized busbar protection relay (14 bays). Later insists for redundancy will have suitable price impact. confirm.	Pl. quote as per TS Section-1, Annexure-A & Section-2.
60	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy, Clause no., Page no. 53 of 341	LOCAL BREAKER BACK UP PROTECTION SCHEME	Will offer inbuilt feature of Busbar protection	Not Acceptable; Pl. follow TS Section-2.
61	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy, Clause no., Page no. 54 of 341	CABLE DIFFERENTIAL PROTECTION	Is this clause applicable for 33kV feeders?	Pl. refer the "Key Metering & Protection SLD" attached with TS Section-4.
63	Section-3, Chapter - 5, Technical Spec for Electrical, Electrical control and protection philosophy, Clause no., Page no. 55 of 341	CHECK SYNCHRONIZING & DEAD LINE CHARGING SCHEME :	Check synch will be part of BCU. Separate check synch is not envisaged.	Pl. follow Tender Specification.
64	General		We understand that switchyard is GIS	Noted; Pl. follow Tender Specification.
65	General		We understand that LCC panel supply is not in our scope.	Noted; Pl. follow Tender Specification.
66	Annexure-S-3/C-9/1 Page-140	The ring main type of architecture is proposed for the sub-station automation system	Here it is mentioned as RING type architecture but in proposed architecture, vide Annexure-S-3/C-9/1, Bus Topology shown. Please clarify which type to be considered.	Pl. follow Tender Specification.
67	1.0- 1.4e / Page-114	Lighting control, Pl. control for new 220 KV GIS switchgear and switchyard area.	Please clarify upto which level this "Lighting control" to be provided. Is it upto individual light point or per Lighting Circuit?? Do you want ON & OFF both control? By "PF control", we understand that you looking for power factor control. Please elaborate the details.	Pl. quote as per TS Section-1, Annexure-A (Sl. No. 35).
68	1.0- 1.4 / Page-3	All modifications including addition of hardware at existing switchboard end is in the scope of contractor including its installation	Switchboard modification shall be excluded from our scope	Noted; However, schematic/ wiring interfacing/ retrofitting as per TS is in bidder's scope.
69	3.3.2 / Page-126	The communication channels between the Substation Automation System and the remote control centre will preferably PLC based if possible otherwise other communication modes as available in the existing refinery set-up may be as utilised, post review and approval during detailed engineering. The supply and installation of required interfacing hardware shall be in the scope of contractor	PLCC communication shall be excluded from our scope. However, we can have provision of data communication on IEC-101/IEC-104 open protocol. In that case, please inform the quantity of signals to be exchanged with RSCC.	Pl. quote as per Tender BOQ.
70	3.3.3 / Page-126	The communication protocol for gateways to control centre must be open protocol and shall support both the telecommunication protocols i.e. IEC 60870-5-101 (Serial) & IEC 60870-5-104 (TCP/IP) and IEC 61850 for all levels of communication for sub-station automation such as Bay to station HMI, gateways to remote stations etc.	RSCC communication can be IEC-104 / IEC-104 whereas inside plant communication shall be IEC-61850 (within new SAS/LMS System, between new SAS/LMS to existing ECS etc.)	Pl. quote as per Tender BOQ.
71	5.1.1.3 / Page-129	Network Management System	Please inform the Capacity of NMS system, i.e. No. of IP equipment to be covered by this system. Shall it be for equipment being offered in the present project or it will present project with some spare capacity.	Pl. refer the "Amendments by IOCL" attached with TS Section-2.
72	10.5 / Page-133	Requirement of training: The contractor shall provide training for two batches for two weeks each for following courses	Here it is mentioned as Two batches, however at clause 10.1 it is mentioned as "at least 20 persons in 3-4 batches." Please clarify.	Pl. refer the "Amendments by IOCL" attached with TS Section-2.
73	12.0 / Page-134	List of Inputs The exact number and description of digital inputs shall be as per detailed engineering requirement Apart from the above mentioned digital inputs, minimum of 500 inputs shall be kept as spare for use in future.	Please inform 500 spare inputs shall be Hard I/O or Soft I/O or mix of both.	Hard I/O as per TS.
74	Annexure-S-3/C-9/2 / Page-135	These signals are required over numerical relaying metering LAN and Transducers output having redundant signal	Please clarify whether these signals (Sl. No-4 "R phase current" to Sl. No-13 "Frequency") shall be acquired from Relay or Relay and Transducer both (parallel) and also shall it be redundant?	Pl. follow Tender Specification.
75	Annexure-S-3/C-9/1 / Page-140	S. The router to Remote Control Centre (RCC) shall communicate on IEC 60870-5-101 protocol.	Router is not applicable for IEC-104 communication and not required for IEC-101. Please consider which one to consider.	Pl. quote as per Tender BOQ.
76	1.1.4.4 / Page-142	The new remote RTU unit shall communicate with the central LMS processing unit through redundant OPC links	Which RTU shall be considered as "central LMS processing unit" - one which is planned at SS-28 in PR CPP, please clarify.	Pl. follow Tender Specification.
77	1.1.6.4 / Page-144	Priority based load control based on the guiding parameters as per the system requirements.	Request you to provide the detail list of "Priority based load control based on guiding parameters".	Pl. refer TS Section-1 & 2.
78	1.1.6.4 / Page-144	Supply, installation of required transducer, its wiring in new or existing switchgear shall also be in the scope of contractor.	Kindly elaborate, if Transducer/Dummy panel is required for the scope mentioned, and if required, the wiring in existing switchgear shall be excluded from our scope.	Pl. follow Tender Specification.
79	3.3 / Page-145	In order to reach the desired short reaction time it must be noted, that the entire Ethernet network must be designed and parameterized in that way to achieve a very fast reaction time typically below 100 ms excluding the field devices operation time. Same needs to be demonstrated during SAT.	The present system is for SAS/LMS of new GIS substation and with integration with PR & PNC ECS system. The LS time is dependent of various factor like the overall CCT (Critical clearing time) of the whole plant, response of the existing ECS systems (PR & PNC) with their networking protocols including the distances & various interfaces etc. Without proper strategy and holistic approach, the same can not be confirmed.	Pl. refer the "Amendments by IOCL" attached with TS Section-2.
80	3.1.6 / Page-146	Load Frequency Control (LFC) based on minimization of the Area Control Error (ACE) to maintain nominal frequency	Please explain the functionality with some more details.	Pl. follow Tender Specification.
81	3.2.0 / Page-147	All data transfer shall be on fast data transfer protocol to achieve data resolution of as low as 1ms	For offered hardwired signals, it shall be 1 ms but for other acquired signals, the same shall be as per source stamping resolution.	Pl. follow Tender Specification.
	General	System Study - Not in Scope	As system Study is not in our scope, request to kindly submit the final System Study parameters to design the total Load shedding application accordingly. System Study report be submitted with all parameters mentioned. Any discrepancy in system study shall not be taken care in the present scope.	Noted; System study reports shall be made available during detailed engineering.

Handwritten signature

Handwritten signature
14/10/2020



Whillapur

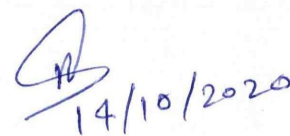
14/10/2020

S.No	Specification	Clause	Specification Requirement	Comments	BHEL REPLY
1	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	1 (ii)	Station Human Machine Interface (HMI) at Sub-station Operator room (2 Nos.), PR Control Room (2 nos.), PNC Control Room (Total 2 Nos.) and Engineering / Cabinet Room (2 Nos.).	Please clarify if all HMI shall work as operator cum engineering workstation or engineering function shall only be required at engineering / cabinet room HMI.	Pl. follow Tender Specification.
2	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	1 (iii)	Station LED television of not less than 60" (60 inch) at PR & PNC control room.	Please specify the quantity of LEDs to be placed in PR and PNC control room.	Pl. refer TS Section-1, Annexure-A.
3	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	1.2	SAS Gateway	SAS Gateway shall be Data Concentrator (RTU Based) with redundant communication processor and power supply cards. It shall also have provision of taking hardwired inputs from the field. We shall accommodate the LT aux. signals directly into the gateway. Single Gateway shall be offered which shall provide redundant communication to RCC/RSCC.	Pl. follow Tender Specification.
4	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	1.3	The communication gateways shall facilitate the information flow with remote control centres.	Please specify the communication protocol between local plant and RCC. Also confirm if remote HMI is to be included in offer. We understand that only provision of data from gateway is included in our scope. Any supply or services related to communication link or interface (at either end i.e. local and remote) is not in our scope.	Remote HMI or RCC is not applicable. Only remote HMI (OWS cum EWS) at PNC and PR is to be provided as per specs. SAS to ECS communication is over OPC.
5	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	1.4 (d)	Existing generator's MW, MVAR recording and generation summary reports preparation for complete system including PR and PNC.	Please specify the communication port and protocol between existing generator equipments and SAS along with their distance. Also provide us the detail of communication with existing generator.	for LMS and ECS, all the signals shall be hardwired (DI/DO/AI)
6	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	1.4 (e)	Lighting control, PF control for new 220 KV GIS switchgear and switchyard area.	We understand that lighting and PF control devices shall be communicated/hardwired to SAS.	Lighting control and PF control for new area is required.
7	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	1.4 (g)	All modifications including addition of hardware at existing switchboard end is in the scope of LSTK contractor including its installation.	Please specify the modification requirement at existing switchboard end. Also specify the quantity and location of switchboard along with protocol/port details of respective devices which are to be integrated into SAS.	Pl. refer Tender Specification Section-1, Cl. No. 3.2 i.
8	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	3.1.1.3.2	Modes of Synchronisation.	We understand that synchronization shall be done through SCAP however we understand that same is existing at plant.	Pl. follow Tender Specification.
9	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	3.1.1.4	Raise and lower operation of OLTC taps of transformer shall be facilitated through Bay controller IED.	BCU shall be capable of raise and lower operation of OLTC taps of transformer. However it shall not perform the voltage matching or load sharing functions between transformers.	Required as part of active / reactive power control of LMS.
10	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	3.1.2.2	This shall give alarm if 70% memory is full.	IEDs are continuously sending the data to SAS and not storing the events if communication is healthy. Hence if communication is lost then the IED start storing the data however it does not have any visual indication to alarm the capacity utilization of IED.	Pl. follow Tender Specification.
11	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	3.2.2	Suitable no. of Transducers shall be provided to facilitate the flow of 4-20mA Analogue signals as per Annexure-5-3/C-9/2 from the bay level equipments	Same shall be in scope of EM-TS.	Pl. refer TS Section-1, Annexure-A & Section-2.
12	Section-3 Chapter-9 PART A - TECHNICAL SPECIFICATION FOR SUBSTATION AUTOMATION SYSTEM	10.1	Training	We shall offer training of 5 days each for a batch of 10 persons from IOCL at our Training Centre in Gurgaon. The training shall include CRP and Automation.	Pl. refer the "Amendments by IOCL" attached with TS Section-2.
13	Section-3 Chapter-9 Annexure-5-3/C-9/1	5	The router to Remote Control Centre (RCC) shall communicate on IEC 60870-5-101 protocol.	Router can't be used for IEC 60870-5-101 communication. We shall offer PLC Modem for the same.	Pl. quote as per TS Section-1, Annexure-A.
14	Section-3 Chapter-9 PART B - LOAD MANAGEMENT SYSTEM (LMS)	1.1.4.1	One no. of redundant RTU unit shall be provided at the PNC power plant	We understand that each RTU unit shall have single power supply and communication cards. We offer to provide one panel with single RTU rack with redundant communication and power supply cards to optimize the space requirement of panels	Redundant RTUs required.
15	Section-3 Chapter-9 PART B - LOAD MANAGEMENT SYSTEM (LMS)	1.1.4.3	New RTU panel will comprise of minimum but not limited to	We understand that each RTU panel shall have one RTU unit with single power supply and communication cards. We offer to provide one panel with single RTU rack with redundant communication and power supply cards to optimize the space requirement of panels	Pl. follow Tender Specification.
16	Section-3 Chapter-9 PART B - LOAD MANAGEMENT SYSTEM (LMS)	1.1.5.1	One no. of redundant RTU unit shall be provided at the PR power plant	We understand that each RTU unit shall have single power supply and communication cards. We offer to provide one panel with single RTU rack with redundant communication and power supply cards to optimize the space requirement of panels	Pl. follow Tender Specification.

14/10/2020

Handwritten signature

17	Section-3 Chapter-9 PART B - LOAD MANAGEMENT SYSTEM (LMS)	1.1.5.4	The new remote RTU unit shall communicate with the central LMS processing unit through redundant OFC links.	We understand that proposed LMS at new 220 kV station is to be interfaced with existing Emerson ECS system for load shedding and generation control requirement. Since it is a proprietry requirement (which requires the component from existing ECS system to be installed for load shedding and generation control) hence we request IOCL to remove the same from scope so as to allow competitive bidding from all bidders. Furthermore, the LMS (like SAS) does not work in hierarchy of different makes (interoperability), hence LMS within LMS can't be offered. Existing LMS shall be responsible for load shedding and generation control with the plant.		Regarding ECS Interfacing, pl. refer the "Amendments by IOCL" attached with TS Section-2.
18	Section-3 Chapter-9 PART B - LOAD MANAGEMENT SYSTEM (LMS)	1.1.6.4	The new remote RTU unit shall communicate with the central LMS processing unit through redundant OFC links.	We understand that proposed LMS at new 220 kV station is to be interfaced with existing Emerson ECS system for load shedding and generation control requirement. Since it is a proprietry requirement (which requires the component from existing ECS system to be installed for load shedding and generation control) hence we request IOCL to remove the same from scope so as to allow competitive bidding from all bidders. Furthermore, the LMS (like SAS) does not work in hierarchy of different makes (interoperability), hence LMS within LMS can't be offered. Existing LMS shall be responsible for load shedding and generation control with the plant.		Regarding ECS Interfacing, pl. refer the "Amendments by IOCL" attached with TS Section-2.
19	Section-3 Chapter-9 PART C- Modification in existing ECS system for changes in Load shedding facility	All Clauses	Presently Emerson make ECS system is used in Panipat refinery and ABB make ECS system is used at PNCP end for electrical system monitoring and Load shedding requirement.	We understand that proposed LMS at new 220 kV station is to be interfaced with existing emerson ECS system for load shedding and generation control requirement. Since it is a proprietry requirement (which requires the component from existing ECS system to be installed for load shedding and generation control) hence we request IOCL to remove the same from scope so as to allow competitive bidding from all bidders.	Hardware at PNCP end of emerson RTU to create ABB ECS as slave shall be provided. All the signals to and from LMS, ECS shall be hardwired. LMS shall be in parallel to existing ECS. Emerson RTU at PNCP end shall be hardwired to load shedding feeders for load shedding (for breaker status / MW)	Regarding ECS Interfacing, pl. refer the "Amendments by IOCL" attached with TS Section-2.
20	Section-3 Chapter-9	All Clauses	LMS functionality in offered SAS	Since it is a proprietry requirement (which requires the component from existing ECS system to be installed for load shedding and generation control) hence we request IOCL to remove the same from scope so as to allow competitive bidding from all bidders.	LMS shall be used for generation control only and not for load shedding.	Pl. follow Tender Specification.
21	Section-3 Chapter-17	All Clauses		Please specify the approved makes of relay panel.		Pl. refer the "IOCL-approved components make list" attached with TS Section-2.
22	Section-1 Chapter-2 ENGINEERING DESIGN BASIS ELECTRICAL	5.5.1.7	Laptop	We understand that laptop shall only be loaded with relay parameterization tool as requirement and use of laptop is not mentioned in SAS specification (Section-3 Chapter-9)		Pl. refer TS Section-1, Annexure-A & Section-2.
23	Section-1 Chapter-2 ENGINEERING DESIGN BASIS ELECTRICAL	5.4.4.1	Notes: 1. MVA meter in EHV external power supply Incomers shall include maximum demand indication also and shall follow the HVPNL guidelines also.. 2. Separate MW, MVAR, MVA and MVAH meters shall be provided for EHV external power supply Incomers only. 3. Seperate 3 nos. voltmeter and 3 nos. ammeter shall be provided for EHV external power supply incomers.	We understand that other than EHV Incomers (i.e. 220 kV Lines), rest all feeders can be supplied with inbuilt metering within relay / BCU.		Pl. follow Tender Specification.
24	Section-1 Chapter-2 ENGINEERING DESIGN BASIS ELECTRICAL	5.5.1	Note-1: The integration with existing ECS required with suitable protocol convertor card which is to be provided by the vendor.	Please provide the details of the card and protocol.		Regarding ECS Interfacing, pl. refer the "Amendments by IOCL" attached with TS Section-2.
25	Section-1 Chapter-2 ENGINEERING DESIGN BASIS ELECTRICAL	5.12	The existing ECS system to be augmented for inclusion of new signals related with the load shedding, required hardware addition will be in vendor's scope through OEM of the ECS system. Separate new SCADA system to be provided for new system.	Since it is a proprietry requirement (which requires the component from existing ECS system to be installed for load shedding and generation control) hence we request IOCL to remove the same from scope so as to allow competitive bidding from all bidders.		Regarding ECS Interfacing, pl. refer the "Amendments by IOCL" attached with TS Section-2.
26	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	1.1.7.2 and 1.1.7.3	The system study shall be carried out through following reputed consultancy agency or equivalent only. For any other firm, the required credentials, work experience documents shall be submitted to Engineer In-charge for	There is mismatch in approved system study vendors between this clause and as per CI 10.1.1.29 of SECTION-2 SPECIAL CONDITION OF CONTRACTS - TECHNICAL PART -A.		Pl. follow Tender Specification Section-2.
27	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	1.1.10	Central Transducer Panel	Same shall be in scope of EM-TS.		Pl. quote as per TS Section-1, Annexure-A.
28	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	5.10.1.2	Conventional Equipment	We understand that all these functions can be clubbed in MFM (communicable) to provide data to SAS.		Pl. refer the "Amendments by IOCL" attached with TS Section-2.

29	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	5.10.1.4	Auxiliary equipment	We propose to offer Siemens / ABB Make auxiliary relays as single party shall not provide us competitive advantage. Also the lead time for GE (Alstom) make aux. relays is quite high which can have impact over project schedule.		Pl. refer the "Amendments by IOCL" attached with TS Section-2.
30	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	5.11.16 (d)	Relay shall be looped by Fiber Optic / twisted wire Cables up to PC.	Since all the relays are communicating over IEC 61850 hence there is laptop can be connected directly to LAN for configure / download the parameters to/from relay.		Pl. follow Tender Specification.
31	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	5.13	Energy Meter	Same shall be in scope of EM-TS.		Pl. quote as per TS Section-1, Annexure-A & Section-2.
32	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	16.A.3.B.6	Bus Differential - Distributed Bus Zone Protection for all Bays With DR in Bay as well as Central Unit (Protocol - 61850).	Bay units shall communicate with central unit. All the DR shall be transferred from central unit to DR workstation over IEC 61850.		Pl. follow Tender Specification.
33	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	16.A.3.B.6	*The protections 2,3,4,5 & 6 listed are to be provided through separate islanding relay with DR (Protocol-61850)	We understand that all these functions can be clubbed in one single islanding relay.		Pl. follow Tender Specification.
34	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	16.A.3.B.6	The same protections required shall be provided separately for OLTC also.	Please clarify the protection requirement for OLTC.		Pl. refer the "Amendments by IOCL" attached with TS Section-2.
35	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	16.A.3.B.6	***BCU unit may become a part of SCAP for control requirements.	We understand that BCU shall be placed in CRP and not in SCAP. Synchronization commands from SCAP shall be directly routed to field devices.		Pl. refer the "Amendments by IOCL" attached with TS Section-2.
36	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	17.4	Individual SCAP panel for PR & PNC	We understand that SCAP panel for PR shall not control the devices in PNC and vice-versa.	Understandign is correct. Refer point 6 and 7 of Pg 32 of 99 in CRP specs.	Pl. refer the "Amendments by IOCL" attached with TS Section-2.
37	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	17.A.g	Digital meters for each bay and feeders	We propose to offer one no. of MFM for each bay / feeder in SCAP panel for monitoring. This MFM can be used to monitor the parameters listed in this clause.		Pl. follow Tender Specification.
38	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	17.B.1	The panel will be free standing Unit with mosaic accessories.	We understand that the panel shall be free standing type simplex panel and not Mosaic type.	Required.	Pl. follow Tender Specification.
39	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	20	Transducer Panel	Same shall be in scope of EM-TS.		Pl. quote as per TS Section-1, Annexure-A.
40	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	ANNEXURE S-3/C-5/3	TECHNICAL SPECIFICATIONS (NUMERIC PROTECTION RELAY FOR FEEDERS	We understand that this specification is relevant to 33 kV switchgear only and not for 220 kV.		Pl. follow Tender Specification.
41	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	ANNEXURE 1	TECHNICAL SPECIFICATIONS FOR (FOR FAST BUS TRANSFER SCHEME)	We understand that this specification is relevant to 33 kV switchgear only and not for 220 kV.		Pl. follow Tender Specification.
42	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	ANNEXURE S-3/C-5/5	TECHNICAL SPECIFICATIONS FOR NUMERICAL FEEDER DIFFERENTIAL PROTECTION RELAY	We understand that this specification is relevant to 33 kV switchgear only and not for 220 kV.		Pl. follow Tender Specification.
43	Section-3 Chapter-5 Technical Specifications for ELECTRICAL SYSTEM STUDY, ELECTRICAL CONTROL & PROTECTION PHILOSOPHY	1.1.2	Design, fabrication, supply, installation, factory and site testing including commissioning of Synchronising control alarm (SCAP) system to meet the requirements of various control and protection schemes for protection of, a- 220 KV overhead double circuit lines b- 220 KV GIS system c- 4 no of 220/33 KV power transformer d- 4 nos of spare bays e- Power evacuation 33 KV cables and associated downstream switchgears f- Auxiliary systems.	Please confirm for what all feeders the SCAP is required.		Pl. refer the "Amendments by IOCL" attached with TS Section-2.
44	Protection Scheme of lines	CHECK SYNCHRONIZING & DEAD LINE CHARGING SCHEME	Check synchronizing relay and dead line charging equipment shall be provided for 220 kV Both incomer feeders, all 4 transformer feeders, 220 KV bus coupler feeder, 4 Nos. 220 KV spare bays, all 6 nos 33 KV feeders of Generation system in SCAP.	Please confirm if feeder-wise SCAP panel is to be provided or shall it be one common panel for all feeders.		Pl. follow Tender Specification.
45	Section-2 Special Conditions of Contracts - Technical Part A	10.1.1.5	The SCAP/ Remote control hardware and HMI panel to be installed in existing control room of both PR and PNCP. The existing control room shall be extended for accommodation of new hardwares in PR. Complete design supply and site work for extension of control shall be in the scope of	Please confirm if SCAP at each location i.e. PR and PNCP can be controlled from either locations.	Refer specs of CRP Cl 17 SCAP Panel requirements Point 6 and 7	Pl. refer the "Amendments by IOCL" attached with TS Section-2, for feeder list of SCAP Panels.
46	General	-	LMS	As per the pre-bid discussion, we understand that the LMS system refers to purely the load shedding and the load generation control system. Please Confirm.		Pl. follow Tender Specification.

Handwritten signature

Handwritten signature
14/10/2020

47	General		Location of Panels	CPR, SCADA, PLC panels for the new 220kV GIS substation, will be placed in the new substation building. However, the SCADA/SCAP panels for the integration of PR and PNCP plants will be placed in the same place.		Pl. refer TS Section-1, Annexure-A & Section-2; Also, pl. refer attached location sketch.
48	Section-2 Special Conditions of Contracts - Technical Part A	Annexure S-2/C-1/2 S. No. 31		CRP and SCADA have been mentioned in both the line items. Please clarify us on the same.		Referred Sections/ Clauses could not be located in the present tender documents.
49	Section-2 Special Conditions of Contracts - Technical Part A	Annexure S-2/C-1/2 S. No. 32	Extension of existing SCAP panel in PNCP for accommodating the new 33 KV generation bus incomers and LIB feeders.	Please provide us the details of existing SCAP panel in PNCP and whether it can be extended or is to be replaced.		Pl. refer the "Amendments by IOCL" attached with TS Section-2, for feeder list of SCAP Panels.
50	Section-2 Special Conditions of Contracts - Technical Part A	Annexure S-2/C-1/2 S. No. 33	SCADA system for new 220 KV system, associated 33 KV system including HMI in remote control room in PR and PNCP.	Do we need to provide the SCADA for 33 kV interconnecting switchgears being installed at PNCP end.		Pl. refer Tender Specification Section-1, Cl. No. 3.2 i.

M. K. Singh

14/10/2020

BHEL TBG NIT 54736_50Q2100216 Supply & Services for Substation Automation System for IOCL Panipat Project Commercial Pre-bid queries & clarifications			
Queries			BHEL-TBG's clarification
1	Payment Terms : clause 3.2 of terms & conditions shall be :	95% of supply payment along with 100% taxes and duties within 60 days from the date of receipt of complete invoice along with documents in 3 sets Balance 5% of supply payment within 60 days against submission of additional BG of equivalent value valid for 6 months from the date of dispatch.	In case of completion of Services at site gets delayed beyond 12 months from the date of supply for the reasons not attributable to supplier, supplier may claim this payment (5% payment of supply) by furnishing following documents: • GST Compliant Tax Invoice. • Certificate issued by BHEL site in-charge confirming that delay in completion of Services at site is not attributable to supplier (to be arranged by BHEL TBG). • Copy of Bank Guarantee of equivalent value initially valid for 6 months from the date of submission of invoice with additional claim period of three months. In case completion of Services at site is not successfully completed before expiry of Bank Guarantee, BG shall be kept suitably extended till successful completion of Services at site and submission of final Engineering Document certified by BHEL Engineering Group.
2	General Terms & Conditions (Page 4 of 18) Clause No.3-Terms of Payment	Since the scope involves Supply & Supervision of Testing & Commissioning, Cl. 3.2 will be applicable. Request to please reconfirm.	Payment Terms as per clause no. 3.2 & 3.5 are applicable
3	General Terms & Conditions (Page 4 of 18) Clause No.3-Terms of Payment	Request to please cap Retention (5% as per Cl. 3.2) from date of last supply also.	In case of completion of Services at site gets delayed beyond 12 months from the date of supply for the reasons not attributable to supplier, supplier may claim this payment (5% payment of supply) by furnishing following documents: • GST Compliant Tax Invoice. • Certificate issued by BHEL site in-charge confirming that delay in completion of Services at site is not attributable to supplier (to be arranged by BHEL TBG). • Copy of Bank Guarantee of equivalent value initially valid for 6 months from the date of submission of invoice with additional claim period of three months. In case completion of Services at site is not successfully completed before expiry of Bank Guarantee, BG shall be kept suitably extended till successful completion of Services at site and submission of final Engineering Document certified by BHEL Engineering Group.
4	General Terms & Conditions (Page 10 of 18) Clause No.13-Liquidated Damages	Request to please accept : Liquidated Damages for delayed Delivery to replace "maximum of 10% of the total Purchase Order value" with "maximum of 5% of the total Purchase Order value of undelivered portion".	Liquidated Damages shall be applicable as per Tender Terms and Conditions only.
5	General Terms & Conditions (Page 16 of 18) Clause No.35-Termination of Contract	ABB shall be entitled to claim amount from BHEL for all completed deliverables and work in progress till the date of cancellation of Contract and/or Suspension of Work and/or termination and/or expiry of this Contract.	Termination of Contract shall be applicable as per Tender Terms and Conditions only.
6	Annexure to General Terms & Conditions (Page 1 of 4) Clause No.4-Applicable Guarantee Clause	Request to please change : 18 months from the date of last delivery or 18 months from the date (i.e.24.01.2022) of Mechanical completion, whichever is earlier. Wish to inform that NO Mechanical Completion is involved in the project.	Guarantee Clause shall be applicable as per Tender Terms and Conditions only.

BHEL TBG NIT 54736_50Q2100216 Supply & Services for Substation Automation System for IOCL Panipat Project Commercial Pre-bid queries & clarifications			
7	Annexure to General Terms & Conditions (Page 1 of 4) Clause No.6-Applicable LD for Delayed Delivery	Request Customer to provide GST Invoice on LD.	GST Invoice on LD shall be provided to Vendor.
8	Additional Point-Covid Clause	Request to please add Covid19 Clause : In India, according to the Office Memorandum on Force Majeure Clause ("FMC") issued by Ministry of Finance No.F.18/4/2020-PPD dt. Feb 19, 2020 disruption of supply chains due to spread of corona virus in China or any other country will be covered in the Force Majeure Clause. Further in March, 2020 Government of India has declared Covid19 as a "notified disaster" and World Health Organization (WHO) has categorized Covid19 as a pandemic situation. The Parties are aware of the current outbreak of the Covid19 worldwide which impacts or may impact the normal business and execution of the Contract. The Parties agree that ABB is entitled to any time extension in the Contract, if any consequences, whether directly or indirectly resulting out of, or in connection with the Covid19 outbreak, lead to delays in delivery of goods or provision of services, supplies or otherwise affect ABB's contractual obligations and/or duties.	CoVid-19 is accepted as Force Majeure. Force Majeure shall be applicable as per Terms and Conditions only.

**VINEET
GUPTA**

Digitally signed by VINEET GUPTA
DN: c=IN, o=BHARAT HEAVY
ELECTRICALS LIMITED, ou=TBG,
postalCode=201305, st=Uttar
Pradesh,
2.5.4.20=b2e2083b277cc0981eab
5825f584c816732fb1b93864ac67
c026dfa378b76fcd, cn=VINEET
GUPTA
Date: 2020.10.14 12:42:22 +05'30'