

Pre-bid points : Comments and Clarifications

Comments on TECHNICAL SPECIFICATION FOR 33kV Indoor Switchgear (GIS Type)					
Sr No	Clause No.	Specification Requirement	Bidder - Comment & Clarification	BHEL Clarifications	Resolution
1	Annexure 1A Standard spec for HT GI switchgear, Cl.5.1.13 & Pg. 4 of 16	LSC2B	As per new IEC , GIS panels are under LSC2 category . Request you to accept the same	BHEL Noted.	Point closed
2	Annexure 1A Standard spec for HT GI switchgear,Cl. Cl.5.1.18 & Pg. 4 of 16	gas barriers	gas barriers are not applicable for our GIS as we individual stainless steel compartments housing the Cb , DS, ES etc.	BHEL Noted.	Point closed
3	Annexure 1A Standard spec for HT GI switchgear, Cl. 5.6.5, Pg. 6 of 16	earthing - Tinned copper	earthing bar for the switchboard is via bare copper bars having CSA 40X10 sqmm.	Bidder shall comply to the specification requirement.	Bidder confirmed
4	Annexure 1A Standard spec for HT GI switchgear, Cl. 5.10.2, pg. 7 of 16	painting - Epoxy painted	only the end covers are LV doors are of CRCA , which is powder coated via 7 tank process and has a thickness of 60 micron.	Noted. However, shall be discussed during detailed engineering walong EIL/HPCL.	Bidder confirmed
5	Annexure 1A Standard spec for HT GI switchgear, Cl. 6.5.2, pg. 12 of 16	VT primary fuse	In MV GIS , primary VT fuse is not possible owing to the direct plug in design of the VT's.	BHEL Noted.	Point closed
6	Annexure 03 - Single line diagram	BUS VT panels of both sections in 1 panels	we have a innovative design to accommodate Bus VT panels of both the sections of switchboard in one panel. This is a techno commercial superior solution than giving 2 panels for 2 sets of bus VT'. Request you to accept the same.	As per Annexure-3, Feeder list , Note-2, Bus PT panels are part of any other panels as per type tested design of OEM and same may be accepted, however, subject to acceptance of end. Same shall be complied.	BHEL noted as per OEM type tested design.
7	Annexure 06 - Feeder list, Cl. 1,2,pg. 2 of 2	5RX1CX630 sq.mm/Ph, Cu. 33kV	request you to reduce the cable to 4 runs / phase .for 2500A panels. 5 run / phase is difficult to accommodate in panels	Bidder shall comply to the specification requirement.	Bidder confirmed
8	Annexure 11 Spares, Tools and Tackles, Cl. 5, Pg 3 of 4	Power cable termination kit - 2 no	we shall be providing cable kits (outer cone type) for 2 sets of 1C cables (R,Y,B -630sqmm) getting terminated in one panel.	BHEL Noted. Will be dicussed regarding cable size during detailed engineering.	Bidder confirmed
9	Main Specification PY55294,Cl. 7.3.2	Each Numerical Relay shall be provided with dual port for ensuring full redundant communication	kindly confirm the redundant ports to be used on relays - FO or RJ45 .	Pl. refer to the architecture diagram attached as per Ann.-1B. Either FO or Cat6 cable shall be used for looping of relays on IEC61850 HSR network upto HSR red boxes. FO cable shall be used from HSR red boxes to further connectivity to ethernet switches, DC & HMIs. Accordingly, required type of ports shall be considered.	Bidder confirmed
10	main Specification PY55294,Cl.13.3,pg.14 of 15	The requisite type test certificates shall be submitted during technical bid submission/ detailed engineering & type test certificates shall not be older than 5 years from the date of bid submission	some of the TTR of GIS are more than 5 years old , however are still valid as there has been no design change since the last type test . Request you to accept type test reports which are more than 5 years old . We do not envisage the repetition of type test .	Bidder shall comply to the specification requirement. Pl. provided the type test reports which you are having for taking up with HPCL/EIL.	BHEL clarified that offer model should have type tested design as per latest IEC and type test reprots of the same shall be submitted. For any design change later in offered model, Bidder should carryout type test without commercial implication to BHEL. Bidder confirmed.
SUBSTATION AUTOMATION SYSTEM					
1	General	--	S/s93, the relays at 33kV communicating on IEC61850 protocol and whether we can provide PRP or we have to give only HSR., because in HSR we have dis-advantage like double points failure ., kindly suggest	Bidder shall comply to the specification requirement.	Bidder confirmed.
2	General	--	Since the SCADA system on IEC61850 complied, it's difficult get CISCO make switches for networking, request you to allow us to quote the makes complying to IEC61850 standard and substation environment(ABB(AFS)/Hirschmann/Ruggedcom)	All the Bidders shall comply to CISCO. However, any issue w.r.to technical suitability with switch, same will be dicussed mutually wih customer and finalised during DDE.	Bidder confirmed.
3	General	--	Is it that all the voltage levels (66kV, 33kV ,415V) the relays are with HSR /IEC61850 please confirm.	BHEL confirmed. IEC61850HSR compliant.	Point closed
4	General	--	Looping at switch boards level and supply of required HSR box at switchboard level will be respective vendor scope, SCADA vendor will consider only Manageable Ethernet switches at data concentrator end. Please confirm.	BHEL Noted. However., looping of relays along with HSR red boxes of 33kV GIS by 33kV GIS vendor. FurtherBHEL clarified that Cables from HSR red boxes to upstream network (DC, managed ethernet switcghes and HMIs) by 33kV GIS vendor scope only.	Bidder confirmed.
5	General	--	At 415V , the MPR's relays will be looped at switch board level , number of looping on MODBUS TCP/IP will be respective vendor scope, SCADA vendor will take required cable from the last loop of MPRs and its integration . please confirm	BHEL noted.	Point closed
6	General	--	Please give DI/DO/AI signals for hardwire IO's	Pl. refer SAS architecture where hardwired DI (100nos) and Ais (50nos) has already been indicated.	Bidder confirmed.

7	General	--	For interface with DCS /ECS from SCADA., we considered required port and protocol at our end. The required cabling and modification at other end will be in respective vendor scope.	Interface cables (FO/Cat6)from DC to ECS/DCS shall be by 33kV GIS bidder. The distance from DC to ECS/DCS shall be considered around 50 mtrs.	Bidder confirmed.
8	General	--	Typical architecture for SAS system attached .	Pl. comply to the specification requirement.	Bidder confirmed.
9	Vol 1B - Specific condition of Contract, Cl. 11.1,pg. 6 of 12	contract performance bank guarantee	we request BHEL to remove CPBG as we shall already be giving PBG and no advance is there in this project.	Refer cluse 11.1 of SCC Rev 01 reg. CPBG which clearly specifies that CPBG is valid till completion of the contract + 3 months claim period, . PBG shall be furnished immediately after supply completion, valid up to guarantee period + 3 months claim period. The purpose & terms of each bank guarantee is different, hence CPBG is mandatory. CPBG shall returned to the vendor after completion of the contract after which PBG shall be submitted.	Bidder will revert.
10	Vol 1B - Specific condition of Contract, Cl. 11.1,pg. 6 of 12 Vol 1B - Specific condition of contract,cl. 31, pg. 9 of 12	Delivery	we request BHEL to provide 11 months from the date of PO or 28 months from the date of manufacturing clearance for delivery. In MV GIS most of the items are procured from european nation that has a very high lead time . Request you to provide the desired delivery extension.	33kV GIS requirement is very much critical & required at the earliest. Hence considering the project milestone, NIT delivery period of 8 months is scheduled. Further extension beyond 8 months is not possible.	Bidder will revert.
11	--	Limitation of liability and consequential damages clause is missing	Limitation of Liability: Notwithstanding anything contained in this AGREEMENT, its Appendices or orders to the contrary, with respect to any and all claims arising out of the performance or non-performance of obligations under this AGREEMENT or purchase orders, whether arising in contract, tort, warranty, strict liability or otherwise, Bidder's liability shall not exceed in the aggregate 100% of the order value or payments received, whatever is lower. Consequential Losses: Bidder shall in no event be liable for loss of profit, loss of revenues, loss of use, loss of production, costs of capital or costs connected with interruption of operation, loss of anticipated savings or for any special, indirect or consequential damage or loss of any nature whatsoever. Note - Limitation of liability and consequential damages terms are there in other tenders of EIL such as BPCL , MRPL etc. Request EIL to add in this tender also.	Please refer clause 21.0 of revised GCC reg. contractors liability. Same shall be complied. New terms not acceptable	Bidder will revert.

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Comments on TECHNICAL SPECIFICATION FOR 33kV Indoor Switchgear (GIS Type)					
Sr No	Clause No.	Specification Requirement	Bidder - Comment & Clarification	BHEL Clarifications	MOM resolution on 08.06.18
1	CI 1.0 of PY55294	INTENT OF SPECIFICATION	Our scope of supply only includes supply of equipment and services actually listed in our attached technical description. Any further equipment and services need to be covered by an additional quotation by bidder. Please notice the following is not included: i) supply and mounting of base frame or intermediate floor ii) installation of site iii) provision of crane iv) off-loading, crantage of panels and accessories, provision of lifting tools v) any panel storage vi) civil works vii) supply and termination of HV-cables viii) supply and termination of LV-cables ix) supply and termination of earthing connection between switchgear bar and switchgear building earth system x) supply and connection of external main and secondary cables xi) site approval, function tests, commissioning and handing over to the client xii) information and training of operation personnel xiii) surge arrester xiv) primary fuses for VTs xv) neutral CTs xvi) HV Test adapter xvii) Dummy plugs xviii) No calculation or selectivity study xix) Surge arrester calculation / selection study	Bidder should comply the scope as specified in enquiry specification (PY55294). i) Integral Base frame or Separate base frame as required for mounting of 33kV GIS switchgear on base channels embedded in the concrete is included in 33kV GIS supplier scope. ii) As per Cl. 3.3.1 of PY55294, Supervision of erection/installation is included in 33kV GIS supplier scope. iii) BHEL scope. iv) BHEL scope v) BHEL scope vi) BHEL scope vii) Supply of HV cable is in BHEL scope. However, as per Cl. 3.1.2 & 3.3.4 of PY55294, Supply of plug & socket/kit including cable termination is included in 33kV GIS supplier scope. viii) BHEL scope. However, as per Cl.3.1.2 of PY55294, cable lugs, glands for LV & control cables is included in 33kV GIS supplier scope. ix) BHEL scope. x) Noted. However, FO cables/Cat 6 cables for substation automations system and FO cables for differential relays as per cl.3.1.9 & 3.2.e of PY55294 is included in 33kV GIS supplier scope. xi) Site approval is in BHEL scope. However, as per Cl.3.3.2 & 3.3.3 of PY55294, testing & commissioning including all testing equipment and tools & tackles of 33kV GIS switchgear and SAS system is included in 33kV GIS supplier scope. xii) As per Cl.3.3.5 of PY55294 Training of operational engineer is included in 33kV GIS supplier scope. xiii) Noted. However, same need to be supplied as per unit rates asked in the price schedule format if needed during detailed engineering. xiv) As per tender SLD (Annexure-3), Fuses on primary side PTs is included in 33kV GIS supplier scope. xv) As per tender SLD (Annexure-3) CTs shown in the transformer neutral is by BHEL. xvi) HV test adapter is included in 33kV GIS supplier scope. xvii) Required Dummy plugs is included in 33kV GIS supplier scope. xviii) BHEL scope. xix) BHEL scope.	(i) to (xiii) Bidder Confirmed. (xiv) Bidder clarified that primary side fuses for VTs are not envisaged in their type tested design. However, same will be discussed with customer during DDE. Point closed. (xv) Bidder Noted.. (xvi) Bidder confirmed that it will be brought during testing at site and taken back by bidder after completion of testing. (xvii) Bidder confirmed. (xviii) to (xix) Bidder noted.
2	CI 3.1.2 of PY55294	33kV GIS Switchgear	Cable termination will be carried out by outer cone type (max. cross section per cable 630 mm2). Cable preparation for cable termination & connection of cable termination kits to GIS switchgear is not included in scope. Dummy plugs and test leads are not included in our scope of supply. In addition cable , cable glands, sockets, lugs & power , control, signal cables shall not be in our scope of supply .	Refer Replies given at Sl.4 above.	Points closed.
3	CI 3.1.3 of PY55294	Supply of all commissioning spares required during testing & commissioning	We do not recommend any commissioning spares required during testing . However we will provide an additional quotation for spares only relevant for our offered product .	As per cl.3.1.3 of PY55294, Commissioning spares as per annexure-11 is included in 33kV GIS supplier scope only. Further, since, pl. note that testing and commissioning of 33kV GIS and SAS is included in 33kV GIS supplier scope, any other spares are required during commissioning shall be made available by vendor without any commercial implications.	Bidder Confirmed. Further, Incase mandatory spares, bidder informed that SF6 gas portable gas filling equipment is not applicable as SF6 gas filling is not possible at site as per their type tested design. However, all other Mandatory spares as per Ann-11 will be supplied as per scope. BHEL noted and point closed.
4	CI 3.1.5 of PY55294	Supply of special tools and tackles	Special Tools & tackles shall not be in our scope of supply	As per cl.3.1.5 of PY55294, tools & tackles as per annexure-11 is included in 33kV GIS supplier scope only. Bidder shall offer any other special tools & tackles are required for O&M purpose as per OEM recommendation and same shall be supplied without commercial implication	Bidder confirmed.
5	CI 3.1.6 of PY55294	Supply of feeder Differential relay, CTs and Differential cable (FO cable/Pilot wire as applicable).	We will offer only feeder differential relays & CTs. Differential cable (FO cable /Pilot wire) shall not be applicable .	Bidder should comply to the scope as specified in enquiry specification (PY55294).	Bidder confirmed.
6	CI 3.1.7 of PY55294	On customer side only CTs (11kV level) shall be supplied as loose by 33kV GIS vendor and same will be installed (By others) in customer's 11kV board (SWGR-200).	Our supply shall be only limited to CTs pertaining to 33 kV GIS supply . Supply of 11 kV CTs shall not be in our scope of work.	Bidder shall comply to the scope as specified in enquiry specification (PY55294).	Bidder confirmed.
7	CI 3.2 of PY55294	Supply of Substation Automation System (SAS)	Offered product shall be compatible with SCADA but supply of SCADA / SAS shall not be in our scope	Bidder should comply to the scope as specified in enquiry specification (PY55294).	Bidder confirmed.
8	CI 3.3.1 of PY55294	Supervision of Erection/Installation of 33kV GIS including Substation Automation system.	We shall be offering only supervision of erection, testing & commissioning at site on chargeable basis. Details of the supervision of erection, testing & commissioning shall be submitted in our detailed techno-commercial offer.	Bidder should comply to the scope as specified in enquiry specification (PY55294).	Bidder confirmed.
9	CI 3.3.2 of PY55294	Complete Testing and Commissioning of 33kV GIS at site by Bidder.	Shall not be in our scope of supply , refer point no 1. for detailed scope of supply	Bidder should comply to the scope as specified in enquiry specification (PY55294).	Bidder confirmed.
10	CI 3.3.3 of PY55294	Services for Testing and Commissioning of protection relays and complete Substation automation system at site	This shall not be in our scope of supply, refer point no 1. for detailed scope of supply	Bidder should comply to the scope as specified in enquiry specification (PY55294).	Bidder confirmed.
11	CI 3.3.4 of PY55294 & CI 5.4 of ANNEXURE-1A TO PY55294	33kV Cable Plug & socket / Kit Erection & Termination at 33kV GIS end shall be by 33kV GIS vendor. All tools & accessories as required for cable termination shall be taken care by GIS supplier	Cable termination will be carried out by outer cone type (max. cross section per cable 630 mm2). Cable preparation for cable termination & connection of cable termination kits to GIS switchgear is not included in scope. Dummy plugs and test leads are not included in our scope of supply. In addition cable , cable glands, sockets , lugs & power , control, signal cables shall not be in our scope of supply .	As per Cl. 3.1.2 of PY55294, Supply of Cable termination accessories such as plug in type/Termination kits on GIS end for Incoming cable termination, Cable Glands for HT (if applicable), Cable glands for LT Power cables, lugs for LT, Control and signal cables etc. at 33kV GIS end is included in 33kV GIS Supplier scope. Further, as per Cl.3.3.4 of PY55294, 33kV Cable Plug & socket / Kit Erection & Termination at 33kV GIS end shall be by 33kV GIS vendor. All tools & accessories as required for cable termination shall be taken care by GIS supplier. As standard accessories, Dummy plugs and test leads shall be supplied by GIS vendor.	Bidder confirmed.

12	CI 3.3.4 & 3.3.5 of PY55294	3.3.5 Training for SIX OWNER's Engineers for a period of at least seven days for each at manufacturer's works for 33kV GIS, Numerical relays & Data concentrators is included in 33kV GIS vendor scope	We shall be providing training at our works only . Training at site shall not be in our scope of supply	As per CI,3.3.5, 3.3.6, PY55294, Training at works and training at site is included in 33kV GIS supplier scope.	Bidder confirmed.
13	CI 3.5 of PY55294	Mandatory Spares:	We do not recommend any mandatory spares required during testing . However we will provide an additional quotation for spares only relevant for our offered product .	As per CI,3.5, PY55294, Mandatory spares as per Annexure 11 is included in 33kV GIS supplier scope. Accordingly Bidder shall quote for mandatory spares as per price schedule format.	Bidder confirmed.
14	CI 4 of PY55294 & CI 2 of ANNEXURE-1A TO PY55294	CODES AND STANDARDS:	The offered switchgear shall be as per IEC standards only	Noted and same will be mutually discussed during detailed engineering with client.	Bidder confirmed.
15	CI 7.2.2 of PY55294 & CI.5.1.2 of ANNEXURE-1A TO PY55294	Minimum degree of enclosure protection	Degree of Protection for our offered product shall be as follows SF6 gas chamber-IP65 Drive-IP2X Low Voltage & for other compartment -IP3X	As per CI.7.2.2, PY55294, Bidder should comply to the enquiry specification.	Bidder confirmed.
16	CI 7.3.5 of PY55294	Laptop shall be of the latest configuration and processor as available at the time of purchase subject to approval by BHEL...	Shall not be in our scope of supply , refer point no 1. for detailed scope of supply	As per CI.3.2, PY55294, Bidder should comply to the enquiry specification.	Bidder confirmed.
17	CI 8.3 of PY55294	During fabrication inspection	Not acceptable hence this clause shall not be applicable .	As per CI.8.3, PY55294, Bidder should comply to the enquiry specification.	Bidder confirmed.
18	CI 8.4 of PY55294	All routine and acceptance tests as per IS standards and Standard Manufacturing Quality Plan shall be carried out at manufacturer's works under his care and expense.	The routine tests for the offered switchgear type will be performed as per the applicable IEC- and manufacturer standards. A detailed test procedure can be submitted on request. Further tests are not included in our scope and require a separate evaluation in terms of feasibility and price.	As per CI.8.4, PY55294, Bidder should comply to the enquiry specification.	Bidder confirmed.
19	CI 8.5 & 13.3 of PY55294 & CI.7.2 of ANNEXURE-1A TO PY55294	All equipments supplied by vendor shall be of proven design and shall be type tested as per IS, IEC standards. The requisite type test certificates shall be submitted during technical bid submission and type test certificates shall not be older than 5 years from the date of bid submission. In case valid test certificates are not available or are older than 5 years, vendor shall conduct tests free of cost and without any delivery implications. In case BHEL / Customer / Consultant insist the tests, the tests shall be done with price implication. Unit rates shall be quoted by vendor as optional.	Kindly note that IEC 62271-200(ed. 2.0) is the latest standard of MV Switchgear. The new standard came into effect in 2011. Therefore, all new medium voltage switchgear design manufactured after 2011, must fulfil the new Standard IEC 62271-200(ed. 2.0). In order to fulfil the new standard, the complete type testing does not need to be repeated for existing Switchgear designs, but only those tests which are affected by modifications from IEC-62271-200(ed. 1.0) to IEC-62271-200(ed. 2.0). However, there are no changes in the new IEC version which requires type testing on our Medium Voltage Switchgear since the same is unaltered since inception. As per global practice, re-testing is only applicable in case of any design change w.r.t last Type Tested Product. Therefore, 5 years' validity clause will not be applicable and we do not envisage the repetition of any type tests. Type test certificates as per IEC shall be submitted for the documentation purpose	As per CI.8.5 & 13.3, PY55294, Bidder should comply to the enquiry specification.	Bidder confirmed.
20	CI 12 of PY55294	PACKING AND DISPATCH	Packing , surface preparation & dispatch shall be as per our standard factory procedure only .	Noted and same will be mutually discussed during detailed engineering with client.	Points closed.
21	CI 5.1.4 of ANNEXURE-1A TO PY55294	The switchgear shall be of modular design and capable of extension in future by the addition of extra feeders without necessarily dismantling any major parts of the equipment.	To be read as : - "The switchgear shall be of modular design and capable of easy installation & extension in future by the addition of extra feeders without any gas works at site or necessarily dismantling any major parts of the equipment"	Noted.	Points closed.
22	CI 5.1.9 of ANNEXURE-1A TO PY55294	The guaranteed leakage rate of each individual gas compartment must be less than 0.5 % p.a. over the lifetime of the Switchgear	The guaranteed leakage rate of each individual gas compartment must be less than 0.05 % p.a. over the lifetime of the Switchgear	Noted.	Points closed.
23	CI 5.1.13 of ANNEXURE-1A TO PY55294	The Loss of Service Continuity category (LSC) of the switchgear shall be LSC2B and partition class PM according to IEC 62271-200.	The Loss of Service Continuity category (LSC) of the offered GIS switchgear shall be LSC2A	As per CI.5.1.14, Ann-1A, Bidder shall comply to the contract specification.	Bidder confirmed that their 33kV GIS is complying to LSC2 & LSC2A as per IEC62271-200. BHEL noted the same.
24	CI 5.1.14 of ANNEXURE-1A TO PY55294	Expansion joints or flexible connections shall be provided in the metal enclosure /conductors to absorb the actual or relative thermal expansion and contraction of the SF6 equipments resulting from variations of the temperature of the switchgear equipment. Suitable mounts and compensators shall be provided where necessary without detriment to the current carrying capacity or gas volume	Expansion joint or flexible are not required in our type tested offered product hence this clause shall not be applicable	Noted and same will be mutually discussed during detailed engineering with client.	Bidder confirmed.
25	CI 5.1.23 of ANNEXURE-1A TO PY55294	All operating mechanisms shall be of motorized type.	The offered switchgear comes with 3 position disconnector cum earthing switch. Disconnector is motorized type & earthing switch is manually operated .	Bidder shall comply to the enquiry specification.	Bidder confirmed.
26	CI 5.4 of ANNEXURE-1A TO PY55294	Space Heaters	Spaces heater are not applicable for our type tested designed switchgear	Noted	Points closed.
27	CI 5.8 of ANNEXURE-1A TO PY55294	Panel supporting frame:	Support structure & base frames shall not be in our scope of supply.	Integral Base frame or Separate base frame as required for mounting of 33kV GIS switchgear on base channels embedded in the concrete is included in 33kV GIS supplier scope.	Bidder confirmed.
28	CI 5.9 of ANNEXURE-1A TO PY55294	Name Plates	Name Plates preparation shall be strictly as per our factory standard practice only	Noted	Bidder confirmed.
29	CI 5.10 of ANNEXURE-1A TO PY55294	Painting	Painting and pre-treatment shall be done as per our standard practice.	Noted and same will be mutually discussed during detailed engineering with client.	Bidder confirmed.
30	CI 5.14 of ANNEXURE-1A TO PY55294	Gas Monitoring system:	Shall be via IDIS (Intelligent Gas Density Indication system) which is an inbuilt feature of our GIS panel	Noted.	Point closed.

31	CI 5.14.2 of ANNEXURE-1A TO PY55294	Each gas filled compartment shall also be fitted with: i) one SF6 gas filling and draining valve with automatic shut off and quick coupling device	Offered product have one filling cum draining valve for each gas compartment	Bidder should comply to the enquiry specification.	Bidder confirmed.
32	CI 6.4 of ANNEXURE-1A TO PY55294	Disconnectors & Earthing switches : Motor-operated combined disconnector / earthing switches, interlocked with the breaker by suitable electrical and mechanical interlocks, shall be provided.	The offered switchgear comes with 3 position disconnector cum earthing switch. Disconnector is motorized type & earthing switch is manually operated .	As per CI.6.4, PY55294, Bidder should comply to the enquiry specification.	Bidder confirmed.
33	CI 6.5.1 of ANNEXURE-1A TO PY55294	Current Transformer	Current transformers are foil insulated toroidal-core current transformers mounted outside of the gas compartments on earthed housing components (not subject to dielectric load from the high voltage) Also the CT burden calculation for protection, metering and differential protection shall be submitted during detailed engineering. Suitable ISF will be mentioned in the SLD during detailed engineering time.	As per CI.6.5.1, PY55294, Bidder should comply to the enquiry specification. However, the CT burdens, ISF values as specified in the specification should be complied as minimum. Further, CT/PT sizing calculations should be submitted during approval..	Bidder confirmed except for VA burden. i.e. they clarified that VA burden shall be max 7.5VA which is sufficient and same will be substantiated with calculation during detailed engineering. BHEL reply: Noted. However, if customer insists for specification requirement, same shall be supplied without any price implication.
34	CI 6.5.2 of ANNEXURE-1A TO PY55294	Voltage Transformer	Metal clad single phase VTs are provided. The same are plug-in type (refer technical offer for details). VA burden for the same shall be in line with our technical BOM. Detailed calculation in support of the same can be submitted during detail engineering in the event of an order.	As per CI.6.5.2, PY55294, Bidder should comply to the enquiry specification.	Bidder confirmed.
35	CI 6.7 of ANNEXURE-1A TO PY55294	Voltage Detectors:	Shall be via IVIS (Intelligent Voltage Indication system) which is an inbuilt feature of our GIS panel	Noted and same will be mutually discussed during detailed engineering with client.	Bidder confirmed.
36	CI 6.7 of ANNEXURE-1A TO PY55294	SF6 Gas Handling Unit:	Gas handling at site for any kind of activity or operation is not applicable for our design thus, we have not considered any gas handling equipment. Hence shall not be in our scope of supply	As per CI.6.7, Annexure-1A, Bidder should comply to the specification	Refer reply against point no.3 above.
37	SLD : ANNEXURE-3 TO PY55294	HRC Fuse	Not applicable in our standard type tested design hence shall not be in our scope of supply	As per tender SLD, Bidder should comply to the specification.	Refer reply against point no.1 above.
38	SLD : ANNEXURE-3 TO PY55294	VT : VA Burden	The VT Burden specified is much on the higher side. Since for protection and metering are through numerical relays, the burden requirement will very less. We propose 20VA burden per phase & shall substantiate this with suitable calculations during detail engineering. HT Fuse is not applicable in 33kV Indoor GIS.	As per tender SLD, Bidder should comply to the specification.	Refer reply against point no.34 above.
39	SLD : ANNEXURE-3 TO PY55294	CT : VA Burden	The CT Burden specified is much on the higher side. CT burden calculation for protection, metering and differential protection shall be submitted during detailed engineering. Suitable ISF will be mentioned in the SLD during detailed engineering time.	As per tender SLD, Bidder should comply to the specification.	Bidder confirmed.
40	SLD : ANNEXURE-3 TO PY55294	Busbar Differential Protection	Busbar Differential Protection is not required as the busbar are offered insider completely hermetically sealed compartment with superior B-link connection, hence the same is not offered in any feeder.	As per tender SLD, Bidder should comply to the specification.	Bidder confirmed.
41	SLD : ANNEXURE-3 TO PY55294	Disconnectors & Earthing switches	The offered switchgear comes with 3 position disconnector cum earthing switch. Disconnector is motorized type & earthing switch is manually operated .	As per tender SLD, Bidder should comply to the specification.	Bidder confirmed.
42	ANNEXURE-5 TO PY55294	Sub Vendor List	Both Vendor & Sub Vendor list shall be as per SEIL approved vendor list only .	As per Ann-5, Bidder should comply to the specification.	Bidder confirmed.
43	ANNEXURE-6 TO PY55294	Dummy Panels	Kindly confirm , whether the dummy panels shall be included in our scope of supply or not.	To be included as per Ann-6 of enquiry specification.	Bidder confirmed.
44	ANNEXURE-10 TO PY55294	PACKAGE EXECUTION MILESTONES/ SCHEDULE	Same shall be discussed during KOM post order stage	Noted	Point closed.
45	ANNEXURE-11 TO PY55294	LIST OF SPARES, TOOLS AND TACKLES FOR 33KV GAS INSULATED SWITCHGEAR	We do not recommend any commissioning / mandatory spares required during testing . However we will provide an additional quotation for spares only relevant for our offered product . Spares related to SAS & special tools & tackles shall not be in our scope of supply	As per Annexure-11, Bidder should include list of commissioning spares, tools & tackles and mandatory spares in their scope of supply. Accordingly, offer shall be submitted as per Price schedule.	Refer point no 3 & 4 above.

46	ANNEXURE-12 TO PY55294	DOCUMENTS TO BE SUBMITTED AFTER AWARD OF CONTRACT	The documentation is limited to the low voltage compartments of the medium voltage panels and consists of the following documents issued according to bidder's Standard in the event of order: - single line diagram - gas monitoring scheme - GA plan covering civil and fixing requirements - section and view of typical feeders including name plate details - front view drawing - switchgear data sheets - component data sheets if applicable - standard operation instruction (erection drawings are not included, the erection will be supervised by a bidder's specialist) - material safety data sheets for hazardous materials - CT/VT routine test reports - CT magnetizing curves - wiring diagram of each typical feeder - inter panel wiring diagram - LV compartment layout - painting procedure - routine test procedure and report for GIS - FAT procedure and report The above listed documentation will be submitted per substation. The documentation language is English.	Bidder should comply to the contract specification. However, detailed Master Document list will be discussed mutually with client and finalized.	Bidder confirmed		
Sr No	Type of Comment	Bidder - Comment & Clarification					
Scope clarification (Limit of supply)							
General Comment		We have quoted our standard gas-insulated switchgear types GHA for 33kV with all the relevant features as per this offer and our descriptive documentation. For the details of our switchgear design and technical supply we therefore request you to refer to both. Our supply and performance obligation only includes the supplies and services as expressly listed in our quotation. Our offer must for the above mentioned reason be subject to changes in design as well as in price depending on the final requirements. We are obviously prepared to discuss and sort out these points item wise.			Bidder should comply to enquiry specification. No deviation is allowed. Bidder confirmed		
Standards		The offered switchgear has been designed according to the relevant IEC/VDE standards mentioned in our technical offer. Other standards are not considered!			Noted and same will be mutually discussed during detailed engineering with client. Bidder confirmed		
Wiring of LV Compartment & drive cabinet		The drive cabinet will be wired according to bidder's design. For LV Compartment Standard single-core non-screened PVC cable is used. The following core cross-sections are used: Bus wiring for Panel AC & DC distribution between panels 2.5mm2 black / Gray, CB , disconnector basic circuits: 1.0mm2 Black (Standard) Control, interlock and remote signaling circuits: 1.5 mm2 Gray Releases and mechanism motors: 1.5mm2 Gray Conventional current transformers: 2.5mm2 R, Y, B, Black, green Conventional voltage transformers: 1.5mm2 R, Y, B, Black, green			Will be mutually discussed during detailed engineering with client. Bidder confirmed		
Labeling		- Switchgear rating plates are performed as adhesive plastic foil - Labels for internal devices are performed as plastic stickers - Panel name plates are performed as adhesive plastic foil			Will be mutually discussed during detailed engineering with client. Bidder confirmed		
Packing		Packing is carried out according to HPE standard. Requirements exceeding that scope are not included in our quotation and need to be covered on an extra cost base.			Bidder shall comply to the enquiry specification. Bidder confirmed		
Operating Temperature		The offered equipment is of indoor type and designed according to the below mentioned standard ambient conditions: Ambient temperature min. -5°C Ambient temperature max. +40°C rel. humidity < 95% Installation altitude above sea level < 1000 m			Noted. However, Bidder should comply to design ambient of 45 deg. As per Cl.2.0, PY55294 of enquiry specification. Bidder confirmed		
Routine Test		The routine tests for the offered switchgear type will be performed as per the applicable IEC and manufacturer standards. A detailed test procedure can be submitted on request. Further tests are not included in our scope and require a separate evaluation in terms of feasibility and price.			As per Cl.8.4, PY55294, Bidder should comply to the enquiry specification. Bidder confirmed		
Type tests		A type test protocol can be submitted on request. New type tests which perhaps need to be carried out on clients request, are not included in our quotation and need to be clarified and covered by an additional quotation. The offered Switchgear is fully Type tested. We shall submit all type test reports along with technical offer. Same to be scrutinized by Purchaser and issues if any shall be discussed prior to submission of price bid. We do not envisage repetition of any Type test report and 5 years clause of TTR is not applicable.			As per Cl.8.5 & 13.3, PY55294, Bidder should comply to the enquiry specification. Bidder confirmed		
Factory Acceptance tests		We have included one factory acceptance test. The test contents a function test for one sample panel and a visual check for the remaining equipment. Flight tickets, visa expenses, airport taxes, other incidental travel expenses, hotel accommodation and daily allowances in case of visiting Bidder's factory works are not included.			Noted and same will be mutually discussed during detailed engineering with client. Bidder confirmed		
CT Design and VA burden		Current transformers are foil insulated toroidal-core current transformers mounted outside of the gas compartments on earthed housing components (not subject to dielectric load from the high voltage) Also the CT burden calculation for protection, metering and differential protection shall be submitted during detailed engineering. Suitable ISF will be mentioned in the SLD during detailed engineering time.			Bidder shall comply to the enquiry specification Bidder confirmed		
VT Burden		The VT Burden specified is much on the higher side. Since for protection and metering are through numerical relays, the burden requirement will very less. We propose 20VA burden per phase & shall substantiate this with suitable calculations during detail engineering. HT Fuse is not applicable in 33kV Indoor GIS.			Bidder shall comply to the enquiry specification Bidder confirmed		
Cl.5.11.5, Annexure-1B of PY55294		DI's and DO's for Numerical relays.			-- BHEL clarified that minimum 24 DI's & 12 Dos shall considered for incomer & Buscoupler. However, if scheme demand for more no. of DI/DO + 10% spares same shall be provided without any commercial implication. For all outgoing feeders, No. of DI's/Dos shall be as per schemer requirement with 10% additional spare Dis/Dos. Bidder confirmed.		
General		--			-- As per internal ARC classification, offered GIS is AFLR type, hence separated exhaust duct for venting out the gases.		
SUBSTATION AUTOMATION SYSTEM							
		DESCRIPTION	Bidder - Comment & Clarification	BHEL Clarifications			

		Scope of Work	As per the Architecture we presume the Panels for 66KV GIS, 11KV SWBD, 415V and other Aux hardwired IO will be available in Site. SAS vendor part is only to supply DC and Integrate the desired signals with OWS. Please confirm the same.	Pl. refer Architecture & specification attached in Ann-1B where scope of SAS package is clearly furnished.	Bidder confirmed
		Scope of Work:	Please share with us detailed BOM for DC SAS if available.	Pl. refer Architecture & Specification attached in Ann-1B where scope of SAS package is clearly furnished.	Bidder confirmed
		Scope of Work:	Please confirm Relays available in 66KV GIS, 11KV SWBD, 415V panels all are Numerical IEC 61850 based relays communicating on HSR Protocol, except 415V MCCs (<55Kw motor) which will communicate on Modbus TCP/IP.	Noted. Pl. refer Architecture & Specification attached in Ann-1B where scope of SAS package is clearly furnished.	Bidder confirmed
		Ethernet Switch	All necessary Ethernet Switches will be mounted in the respected Panels. Discrete Panel is not considered in our scope for mounting of Ethernet Switch. Please confirm.	Noted. Pl. refer Architecture & Specification attached in Ann-1B where scope of SAS package is clearly furnished.	Bidder confirmed
		Ethernet Switch	Supply of Complete Scope of Ethernet Switches is not in SAS Vendor Scope. Please confirm.	Pl. refer Architecture & Specification attached in Ann-1B where scope of SAS package is clearly furnished.	Bidder confirmed
		SCOPE of work	6. Supply and Laying of FO Cable, Cat6 Patch cord, FO Patch cord is not considered in SAS Vendor Scope. Please confirm.	As per Cl.3.2.e & 3.3.3 of PY55294, Complete supply of FO cables, Cat6 cables, patch cords, FO patch cords of Substation Automation System is in Bidder scope. For network/optical cables which are in the bidder's scope, the laying of cables shall be in BHEL scope. However, Optical cable will be laid under bidder's supervision. Splicing and Termination shall be in bidder's scope.	Bidder confirmed
		SCOPE of work	7. Supply and Laying of Cable Tray, Conduit is excluded from SAS Vendor Scope. Please confirm.	As per Cl. 3.2.e of PY55294, Supply of HDPE duct for laying of FO cables/Cat6 cables is in 33kV GIS vendor scope. However, laying of HDPE duct is in BHEL scope.	Bidder confirmed
		8. DCS Connectivity:	Integration of data to DCS is excluded from SAS Vendor Scope. Please confirm.	As per architecture, SAS will be connected to DCS on Modbus TCP/IP dual redundant. Accordingly, redundant ports shall be provided.	Bidder confirmed
		9. ECS RTU	Integration of data to ECS RTU is excluded from SAS Vendor Scope. Please confirm.	As per architecture, SAS will be connected to ECS IEC61850 protocol. Accordingly, redundant ports shall be provided.	Bidder confirmed
		GENERAL	10. Please confirm who will be supplying & laying Patch cords from Relay to Ethernet Switch.	Supply of patch cables within numerical relay loop up to HSR red boxes by respective equipment supplier scope. However, cables from HSR red box to Managed Ethernet switches further DC & HMI shall be by Bidder. For network/optical cables which are in the bidder's scope, the laying of cables shall be in BHEL scope. However, Optical cable will be laid under bidder's supervision. Splicing and Termination shall be in bidder's scope.	Bidder confirmed
		GENERAL	11. As per the architecture it is mentioned GRP DC (Other) and connected in the Ethernet Switch. Please confirm the mode of communication.	2 nos. GRPs will have redundant HSR red boxes for looping of GRP relays by others. However, from these Red boxes further connectivity including cables on IEC61850 HSR communication is by Bidder. (i.e. two loops shall be considered)	Bidder confirmed
		GENERAL	12. Please confirm total no. of Substation in this current SAS package.	This project consists of two switchgear cum substation building (94 & 93). Building 94 consists of 11kV switchgears, 415V Switchgears, Battery chargers, SOLAR PCUs, VFDs etc. Building 93 consists of 66kV GIS, 33kV GIS, GRP, UPS, DCS, Battery charger, SAS HMIs, SAS DC & SOLAR PCUs etc. The distance between building 94 & 93 is around 350mtrs shall be considered. Also. refer architecture diagram for distances among various equipment for calculating cable and duct quantities.	Bidder confirmed
		GENERAL	Please confirm the total qty of GPS to be considered.	Only one GPS. However, Pl. Note that The time synchronization shall be carried out either through communication over substation relay LAN or by considering dedicated time synchronization channel. In case of synchronization through relay LAN, the communication protocol shall support to carry time synchronization message to the relays/ data concentrator/HMI and maintain the desired accuracy. In case of time synchronization through dedicated time synchronization channel, relays, data concentrator and HMI shall be provided with IRIG- B port and the same shall be directly hooked up to GPS receiver.	Bidder confirmed
		GENERAL	Please confirm Networking Panel Size.	--	Will be discussed during detailed eng.
		GENERAL	Please confirm the Total Qty of Laptop required for the SAS package.	Pl. refer cl.3.2 of PY55294, 2 nos. Laptops shall be supplied.	Bidder confirmed

Project Name:		BHEL A/c HPCL Vizag					
Rating:		33kV, 40kA , 3 sec, 2500A					
List of documents received							
Item	Document Name		Document number or reference, Drawing number		Dated		
1	PY55294						
2	Standard Specification of HT Gas Insulated Switchboards (Annexure-1A) / Standard Specification of Numerical relays (Annexure-1B)						
3	Feeder List (Annexure-6) (Refer Notes below)						
4	Switchboard SLDs (Annexure-3) (Refer Notes below)						
5	Other Annexures						
Our offer is in accordance with the intent of the above listed specifications. Where deviation has occurred or clarification is deemed necessary, correspondent comment is made on below table.							
Docu- ment - item no.	Clause	Page no.	Specification requirement	C / D	<u>Comment/Deviation</u>	<u>Comment</u>	
						Meeting Resolution Dtd:13.06.18	
PY55294	3.1.2	Page 3 of 15	Supply of Cable termination accessories such as plug in type / Termination kits on GIS end for incoming cable termination, Cable Glands for HT (if applicable), Cable glands for LT Power cables, lugs for LT Control and signal cables etc. at 33kV GIS end.	D	We have not consider any control cable from ECS and SCAP to GIS end . Please clarify the BOQ & sizes for the same if we need to consider the same at our end . This is not clear in the tender	As per specification, it is clearly mentioned that cable termination accessories like plug in type/Termination kits for 33kV cables, Cable false Glands for HT , Cable glands for LT Power cables, lugs for LT, Control and signal cables etc. at 33kV GIS end are included in the scope of 33kV GIS Bidder. BOQ for cable glands, lugs shall be derived based on control scheme drawings given as part of this enquiry. No supply of Power, control and signal cables are included in your scope. However, FO cables part of feeder differential as specified at cl.3.1.6 to 3.1.8 & FO/Cat6 cables as specified in SAS system & SAS architecture.	Bidder confirmed.
PY55294	3.1.4	Page 4 of 15	Supply of feeder Differential relay, CTs and Differential cable (FO cable/Pilot wire as applicable). The above shall be supplied for both 33kV GIS end as per SLD and customer's 33kV, SWGR-270 end by 33kV GIS vendor.	D	CTs for other end of swiethgear SWGR-270 cannot be consider at our end as we are not the manufacturer of the remote end panels . Bidder will not know whether CT dimation can be fitted in that switchgear and Remote end manufacturer will not share design with us also . Request you to take other CT from panel manufacturer only . We will give the specification of the CT during Post order stage . Control cable as required from 33kV GIS to SWGR-200 shall be supplied by BHEL.	Bidder should follow the specification requirement. We confirm that remote end switchgear dimensions & space availability will be shared to Bidder during detailed engineering.	Bidder Confirmed.

PY552 94			Distance Between 33kV GIS and Various boards	C	Request you to let us know the distance between various switchgear from 33kV GIS 33kV GIS to Swgr 200 33kV GIS to Swgr 270 33kV GIS to HV 111	As per Cl.3.1.9 of PY55294, distance b/w 33kV GIS switchgear to remote end panels shall be considered as 400mtrs.	Bidder Confirmed.
PY552 94	3.3.2	Page 4 of 15	Scope related to Supervision of ETC	C	Please clarify whether Bidder need to quote for Supervision of ETC or Complete ETC as both statements are there in specification .	As per cl.3.3.1, Supervision of Erection/Installation of 33kV GIS including Substation Automation system is included in Bidder scope.. As per Cl.3.3.2, 3.3.3 & 3.3.4, Complete testing & commissioning of 33kV GIS switchgear, SAS including Kit erection & termination is included in Bidder scope. Further, as per spec. Arranging all necessary tools, tackles and equipment for testing & commissioning shall be bidder's responsibility.	Bidder Confirmed

PY552 94	5	Page 7 of 15	Order of Priority mention as statutory Regulation	C	Please clearly ?? Please give documents for the same .	These documents are already part of enquiry specification.	Bidder confirmed
PY552 94	3.1.4	Page 4 of 15	Supply of feeder Transformer cum Differential relay and CTs. The above shall be supplied for 33kV GIS end as per 33kV SLD. On customer side only CTs (11kV level) shall be supplied as loose by 33kV GIS vendor and same will be installed (By others) in customer's 11kV board (SWGR-200). Control cable as required from 33kV GIS to SWGR-200 shall be supplied by BHEL.	D	CTs for other end of swithgear SWGR-270 cannot be consider at our end as we are not the manufacturer of the remote end panels . Bidder will not know whether CT dimation can be fitted in that switchgear and Remote end manufacturer will not share design with us also . Request you to take other CT from panel manufacturer only . We will give the specification of the CT during Post order stage .	Bidder should follow the specification requirement. We confirm that remote end switchgear dimensions & space availability will be shared to Bidder during detailed engineering.	Bidder confirmed
PY552 94	3.1.4	Page 4 of 15	All dummy panels and rear extensions required for bus trunking, cable terminations, mounting of relays, metering and control components etc. shall be supplied. The details of	D	We have not consider any Dummy panel because of Beam in Civil Structure as Power cable entry is from Bottom	As per Annexure-6 of this specification, required dummy panels shall be considered.	Bidder confirmed
PY552 94	7.2.4	Page 7 of 15	HT Gas Insulated Switchboards shall be suitable for 3-phase, 3-wire system. Three phase buses shall be provided. The vertical dropper/interconnection bus bars shall be suitably sized for short time current rating of the main bus bar or circuit current rating, whichever is higher.	D	Offer switchgear is single phase encapsulated switchgear having different compartment for each bus-bar phase which is unique advantage having not possibility of phase to phase fault due to its Unique design . Offer switchgear bus-bar compartment is common across entire length of the board per section having separate Manometer for each phase to monitor the SF6 Gas . Breaker chamber and Cable chamber is same Gas chamber monitor in front by manometer.	Noted as per type tested design.. However, vertical droppers/interconnection bus-bar shall be designed for STC of main bus bar and rated current of respective o/g feeder.	Bidder confirmed
PY552 94	7.2.1.4	Page 9 of 15	Painting shall of of RAL 7032	D	Request you to accept our standard RAL 7035 Paint shade	Bidder shall comply to the specification requirement.	Bidder Confirmed

PY55 294	7.2.1.8	Page 10 of 15	Scope of SCAP and ECS supply	C	Request you to clearly the scope for ECS and SCAP and in addition request you to confirm scope for control cable Supply and laying between ECS and SCAP .	SCAP/ECS are remote control panels supplied by others. From these, 33kV GIS will be controlled as per control philosophy part of this specification. Further, no control cables from ECS/SCAP included in your scope.	Clarified. Bidder confirmed
PY55 294	7.2. 6	Page 7 of 13	Protection relays shall be numerical type as specified on the Switchboard SLDs. However, discrete meters as indicated in Switchboard SLDs shall also be provided. All other relays shall be electromagnetic/ static type.	D	NO separate Meters shown in SLD so we have not consider the same. Request you to please clarify	Noted. Follow the SLD.	Bidder Confirmed
PY55 294	7.2. 18	7.2.18	Locking facility shall be provided for breaker in rack-out position to prevent accidental operation during maintenance work in the respective feeder.	D	Our Breaker is Fixed Type breaker	Noted. However, this clause nowhere found in enquiry specification.	Clause is not relevant with the specification.
PY55 294	8.5	Page 10 of 13	The requisite type test certificates shall be submitted during technical bid submission and type test certificates shall not be older than 5 years from the date of bid submission. In case valid test certificates are not available or are older than 5 years, vendor shall conduct tests free of cost and without any delivery implications. In case BHEL / Customer / Consultant insist the tests, the tests shall be done with price implication. Unit rates shall be quoted by vendor.	D	As per IEC 62271 -200 type tests as Cl. 6 , repeat Type Testing is required if any one following conditions is true 1. change in design of switchgear than original Type tested design OR 2. Requirement of Type test within relevant IEC standard has been changed Both the above mention points (1,2) are not applicable for our offered design . Present Type test Report though crossing 5 Years validity marks is still valid and Type test need not to be repeated over the switchgear. We request you to accept the same .	Bidder shall comply to the specification requirement. Pl. provided the type test reports which you are having for taking up with HPCL/EIL.	Bidder is requested to furnish the list of type tests along with validity & justification for not repeating the test with standards. Accordingly, same will be taken up with customer for further, review.
annex ture 10	Package & execution shedule	8	Within 12 weeks from Manufacture clearance date of GA & SLD Drawings (progressively)		Delivery will be six months after manufacturing clearance .	Bidder shall comply to the specification requirement.	Bidder confirmed to meet the delivery schedules as per the specification.
annext ure 5	Sub Vendor List		ABB/KAPPA ELECTRICALS/PRAGATI ELECTRICALS LIMITED/SCHNEIDER/AUTOMATIC ELECTRIC LTD/ELECTRICAL CONTROL & SYSTEMS.		Request you to accept Siemens / Narayan Powertech as subvendor in approved list	Bidder shall comply to the specification requirement.	Bidder Confirmed

			HPCL reserves the right to choose any particular make from the above list for Protection relays during order execution for overall system integration.		we Accept the same with Cost implication during order execution stage ,.	Bidder shall comply to the specification requirement. However, same will be mutually discussed and agreed upon.	Bidder Confirmed
Anne xtur e 1A	Standard Specs for Swicthg ear	5.1.10	Breaker bay shall consist of at least the following arc and SF6 gas- tight high voltage compartments: •Circuit breaker compartment. •Disconnectors/earthing switches. •Bus-bar compartment. However, Combined bus-bar and disconnector / earthing switches compartment can be provided.		Offer switchgear is single phase encapsulated switchgear having different compartment for each busbar phase which is unique advantage having not possibility of phase to phase fault due to its Unique design . Offer switchgear busbar compartment is common across entire length of the board per section having separate Manometer for each phase so as to monitor the SF6 Gas . . Isolator is three position switch and it is in same Busbar chamber . Breaker chamber and Cable chamber is same Gas chamber monitor in front by manometer .	Noted as per type tested design & will be mutually discussed with HPCL/EIL.	Bidder Confirmed
Anne xtur e 1A	Standard Specs for Swicthg ear	6.5.2	Bus VT & line VT with Primary Fuse		1.Primary Fuses in VTs : In GIS panels, the VTs are metal clad and robust in nature without any fuses provided in the primary side , and on secondary side only MCB is provided. The operating primary currents of voltage transformers lie in the milliampere range, whereas the smallest rated currents of HRC fuses start at a few full amperes. Current limiting, back up fuses, which are mostly used, first operate at currents over 10A . it is also proven that fuses on primary side do not play any role in preventing the VT getting damaged during SC fault conditions . Request you to allow VTs without Primary Fuses	Noted and discussed during detailed engineering.	Bidder Confirmed
	Standard Specs for Swicthg ear	6.4.1	The disconnectors shall be suitable to make and break the charging currents during their opening and closing. They shall also be able to make and break loop current which appears during transfer between bus bars. The contact shielding shall also be designed to prevent restrikes and high local stresses caused by transient recovery voltages when these currents are interrupted.	D	The Offered switchgear Disconnectors shall be off load type only and not capable of making or breaking the current .	Bidder shall comply the specification requirement.	Bidder Confirmed

	SLD		Line V T with Disconnecter	D	Offered Line VT will be connectd with 50 sq mm easily removable cable which acts as disconencting function .	Bidder shall comply the specification requirement. However, will be discussed during detailed engineering.	BHEL Noted. Line VT can be connected either through cables or through disconnectors as per standard OEM type tested design.
	SLD		CT on both side of Breaker		SLD shows CT required on Both side of Breaker . As per submitted GA we will be giving 1 No. CT on busbar side above Disconnecter and 1 No. Below Breaker which is standard practice and meet all protection requirement.	Bidder shall comply the specification requirement.	BHEL Noted for bidder query on CT placement.
	SLD		VT burden of 100 VA is required		VT burden of 100 VA is not feasible . Required calculation will be given Post order stage . Request you to accept the same .	Bidder shall comply the specification requirement.	Bidder confirmed specification requirements
	SLD		Surge arrestor		Surge arrestor is not shown in the SLD and hence not consider . But it is mention in the specification of the switchgear . In addition In specification also it is not mention on which feeder we need to give Surge arrestor	Surge arrestor is not required as per specification. However, same shall be supplied as part of switchgear if required as per unit rates quoted in the offer.	Bidder Confirmed
Substation Automation System							
General			Feeder Details (ANNEXURE- 1B TO PY55294)		As per System architecture, quantity of device is mentioned, kindly confirm the mentioned quantity is correct.	Correct only. Based on this Data concentrator panel, Ethernet switches, HSR red boxes and FO, Cat6 cable etc. shall be arrived. Further, this project consists of two switchgear cum substation building (94 &93). Building 94 consists of 11kV switchgears, 415V Switchgears, Battery chargers, SOLAR PCUs,VFDs etc and Building 93 consists of 66kV GIS, 33kV GIS, GRP, UPS, DCS, Battery charger, SAS HMIs, SAS DC & SOLAR PCUs etc. The distance between building 94 & 93 is around 350mtrs shall be considered. Also. refer architecture diagram for distances among various equipment for calculating cable and duct quantities.	Bidder Confirmed
General			Relay Communication		As per System architecture, We understand that Numerical Relay of all voltage levels bays shall support IEC-61850 Protocol for Integration with SAS. Kindly provide the quantity and Make of Relays, as in tender document total quantity of device is mentioned.	Numerical relays of all voltage levels as mentioned in system architecture diagram (part of Ann-1B) will be communicated on IEC-61850HSR through HSR red boxes. For switchgear supplied by others, your terminal point will start from HSR red boxes/Switches. Relays/devices quantity has already mentioned in system architecture diagram attached in Annexure-1B. Make of relays will be intimated during detailed engineering.	Bidder Confirmed
General			Meter Communication		As per System architecture, We understand that Meters of all voltage levels bays shall support Modbus TCP/IP Protocol for Integration with SAS. Kindly provide the quantity and Make of Meters, as in tender documents total quantity of device is mentioned.	As per Architecture Meters are not shown. Pl. elaborate your query.	This query is not related enquiry specification

General	VFD Communication		We understand that all the VFD device of switchboard shall support Modbus RTU Protocol for Integration with SAS. Kindly provide the quantity and Make and port details of VFD.	Noted. No. of VFD devices shall be considered as 4 nos. Make & port details of devices will be intimated during detailed engineering.	Bidder Confirmed
General	UPS, DC System, Soft Starter, Solar Roof Top device Communication		We understand that all device of "UPS, DC System, Soft Starter, Solar Roof Top" device shall support Modbus TCP/IP Protocol for Integration with SAS(as per SAS architecture). Kindly share the quantity and Make and port details of Device.	Noted. UPS: 2 nos. DC system:6 nos. Solar roof top:2 nos. Make & port details will be intimated during detailed engineering	Bidder Noted.
General	Hardwired I/O's List		As per System architecture of Tender documents, number of hardwired (Digital Input & Analog Input) signals which shall integrate with RTU has provided, kindly confirm the mentioned quantity.	Quantity of hard wired digital signals (100 nos.) and analog signals 50 nos. to be integrated with Data Concentrator has already mentioned in system architecture diagram (part of Ann-1B). Pl. follow the same.	Bidder confirmed.
General	ECS Communication		As per tender document, We understand that interface with ECS shall over IEC61850, however we shall provide the data up to offered RTU Port.	Noted. However, necessary support for extending data with ECS shall be provided by the Bidder.	Bidder confirmed. Further, BHEL clarified that necessary cable from ECS RTU to DC shall be taken care by 33kV GIS Vendor & Bidder noted for the same.
General	DCS Communication		As per tender document, We understand that interface with DCS shall over Modbus TCP/IP, however we shall provide the data up to offered RTU Port.	Noted. However, necessary support for extending data with DCS shall be provided by the Bidder.	Bidder confirmed. Further, BHEL clarified that necessary cable from DCS to DC shall be taken care by 33kV GIS Vendor & Bidder noted for the same.
General	Laptop		As per Tender documents, we understand that supply of two no. of Laptop, one for Parameterization of RTU and other Laptop shall be with HMI software for monitoring is required. Kindly confirm.	Pl. refer to the main spec & Annexure-1B where exact requirement of Data concentrator panels, HMIs and laptops. Same to be complied.	Bidder confirmed.
General	RTU		As per system architecture of Tender document, Controller-1 & Controller-2 is mentioned , we understand RTU cum Gateway with Redundant Communication Processor and Power supply in single Rack shall also be acceptable. Kindly confirm.	Bidder shall comply to the enquiry specification.	Bidder confirmed.