Consolidate Prebid query reply, Open Tender No TPCODL/P&S/1000000723/24-25,SITC Work of E-House at Cuttack, Odisha

Sr. No	Documents Ref	Page Number	Specification Clause Number	Description	Comments	TPCODL Response
1	Specification	3 of 33	3	Max. Ambient Temperature - 50 °C	8% de-rating is applicable for 50 °C. Please confirm the same.	Transformer Size is 16 MVA. OEM to verifiy if it able to handle the load with adequate margin at 80% derating
2	Specification	4 of 33	4	Rated short time withstand current	We understand that Rated short time withstand current- 25kA/3 sec is acceptable. Please confirm the same.	Yes
3	Specification	7 of 33	5.1	The gas density sensor shall also be provided with Arcing contact and self-supervision contact.	The gas density sensor shall also be provided without Arcing contact and self-supervision contact. However Gas pressure value status contact shall be provided.	we need two change over contacts stage wise. Stage one is for gas pressure low and stage two is for gas pressure lock out.
4	Specification	7 of 33	5.1 (p)	Capacitor bank switching device shall be provided with suitable gate interlock mechanism with castle key along with timer to ensure safety	We understand that this is not applicable because there is no Capacitor feeders.	No Applicable
5	Specification	12 of 33	5.3	PARTITIONS AND SHUTTERS	Same shall be as per O&M type tested design.	Noted
6	Specification	13 of 33	5.6	Busbar differential CT Core	We understand that no Busbar differential Protection is required for this Project. Please confirm the same.	Not needed
7	Specification	13 of 33	5.6	Cast Resin Type CT	CT shall be Tap wound Type as per our standard design.	Noted
8	Specification	15 of 33	5.11	DISCONNECTORS AND EARTHING SWITCHES: Bidder shall provide the mechanical endurance Class M2 with 10,000 operations and Electrical endurance withstand shall be suitable to class E2.	Since in offered switchgear 3 position disconnector is offload type hence not applicable.	Noted
9	Specification	18 of 33	5.17	Cable Termination	Offered switchgear is suitable for Outercone Type cable termination.	Noted
10	Specification	19 of 33	5.2	Painting	Painting shall be O&M Standard design.	Noted
11	Specification	21 of 33	5.3	Metering	Please provide SLD with metering and protection details.	It will be a Single busbar design with abus sectionaliser
12	Specification	22 of 33	7	Tests	Type test report shall be provided as per IEC standard and validity of TTR shall be as per new CEA guidelines.	Noted
13	General	-	-	SLD	Kindly provided the details SLD with CT and PT detail, Protection requirement, Cable termination of each feeders.	During Detailed Engineering. Xmer Rating is 16 MVA X 2 Nos
14	General	-	-	Ethernet switch	We understand that it will be mounted in separate CRP Panel.	Yes
11kV AIS Points						
1	**11KV VCB SPECIFICATIONS**	2 of 34	1	For standards related to protection & Automation, kindly refer the ENG-ELC-028 & ENG-ELC-033	Document is not available.	PL refer Section-A of SAS
2		3 of 34	3.1	Maximum Ambient temperature- 50 Degree C	Since application is E House it shall be 40 Degree/45 Degree C. We will be able to offer with 45 Degree C.	Transformer Size is 16 MVA. OEM to verifiy if it able to handle the load with adequate margin at 80% derating at 50 Deg
3		5 of 34	4.1.16	Maximum permissible temperature rise at rated normal current.	Temperature rise shall be as per IS/IEC-694.	Noted
4		6 of 34	4.5	Details of Power Cable for Incomer & Outgoing feeders.	We required Nos. of Cable Run & Size for Incomer & Outgoing feeders.	During Detailed Engineering. Xmer Rating is 16 MVA X 2 Nos. Consider all sizes like 400sqmm, 630sqmm,1000sqmm with necessary runs as per ampacity.
5		8 of 34	4.12	Cable Charged Indication in Bus Coupler Panel	Will not be provided as there is no Cable in BC panel.	Noted
6		8 of 34	4.16	Busbar rating for OG & Cap. Feeder-1250A	Same shall be 2000A if SWBD busbar rating is 2000A.	Noted
7		10 of 34	5.1 (b)	Panel shall have Steel Structure of CRCA sheet having Frame of 3 MM thickness.	Our panel frame size shall provided with 2.5mm thick as per Type tested design.	Noted
8		10 of 34	5.1 (c)	All Doors, Cutout & removable covers shall be provided with Neoprene Cork Gasket.	Our panel design is type tested without Gasket hence neoprene gasket shall not be provided.	As per type Tested design
9		11 of 34	5.1 (d)	Panels shall be mounted and bolted to a common base channel. The channel in turn shall be fixed to the foundation bolts at site. All foundation equipment, anchor bolts etc. including the supporting channel shall be furnished by successful bidder in advance for completion of Civil Works prior to dispatch of panels	Our panel design is suitable to mount directly on Civil structure through foundation bolts. Hence separate base channel is not required. Same shall be installed at TPCODL in previously executed supply of SE panels.	Noted

10		12 of 34	5.1 (j)	Prefered to have condition based monitering system through Heat & humidity sensors.	Since its mentioned as prefered to have condition base monitering system we have not considerd the same. Kindly confirm if its required.	Not required
11		16 of 34	5.4	Cast resin CT with Window type Construction to be provided.	As per OEM standard practise CTs shall be provided Wound suitable to panel design.	Noted
12		14 of 34	5.5	PT's Control wiring shall be 4Sqmm shall be provided.	Control wiring of the PT shall be provided 1.5Sqmm as per OEM standard practise. Same shall be excepted bt TPCODL in past executed job.	As per TS
13		19 of 34	5.12 (b)	All Circuit-2.5Sqmm & CT/PT- 4Sqmm	As per previous executed supply reference all circuit shall be provided as 2.5Sqmm.	As perTS
14		21 of 34	5.13	Cable termination Accessories gland plates, Cable Glnds, Crimped Copper Lugs, Supporting clamp & brackets wiring through shall be provided.	Accessories:- (i) Cable Gland plate & (ii) cable supporting Clamp shll be provided. Cable gland, Lugs, Bracket will be excluded from our scope of supply.	Noted
15		22 of 34	5.15 (b)	Earthing Busbar of 40x10 mm Cu. Shall be provided.	Earth busbar shall be provided as 50x6 Cu. as per type tested design.	As per TS
16		22 of 34	5.15 (b)	Separate Earth Busbar to be run along switchgear for protcting earthing of relays, LED & Communication equipment & shall be insulated from the frame.	Earthing of relays, LED & communication equipments shall be done through flexible earth wire as per OEM's standard practise. Seprate earth busbar will not be provided.	As per TS
17		27 of 34	8	Type test reports shall not be exceeding 5 years from the date of opening bid.	Since there is no design change type test reports exceeding 5 years shall be considered.	Noted
18					Does TVM is to be free issued by TPCODL or we need to include in our scope ??	TVM not in supplier's scope
GENERAL POINT						
1	General	-	-	AC DISTRUBUTION BOARD AND DC DISTRIBUTION BOARD General Comments	We have consider Battery Charger with DCDB without rare access for optimizing the Ehouse foot print.	Noted
2	General			Civil Scope	Kindly provide the technical speciification for Civil requirement.	Except Power Xmer All in Suppliers Scope. Supplier to do all necessary engineering.
3	General				Soil resistviity report to be provided.	During detailed Engineering
4	General				Separate CRP panel shall not be provided. All metering & protection requirement shall be captured in 33kV GIS. Kindly share SLD for complete details	Noted
5	General			General arrangement of E-House	Kindly provide the available plot plan for substation area.	During Detailed Engineering. However Bidder may visit the site if required.
6	General				For 11kV Switchgear, we are considering AIS Panel instead of SSIS basis the requirement of 2000A VCB	Both are accepted
7	General			Auxiliary Transformer	Please provide the specification for auxiliary transformer.	Shall be shared
8	General	111 of 637		1.48 Temperature & Humidity Sensor a. Functional Requirement Temperature & Humidity Sensor is required for measurement of climatic condition of (temperature and humidity) Switchyard / Switchgear / Control Room.	Temperature and humidity sensor shall be provided for Switchgear. Please confirm.	Not required
9	General	378 of 637		It is preferred to have condition based monitoring in switchgear using Heat and Humidity sensors in Bus-Bar , Breaker and Cable Compartments. These sensors should be integrated with RTUs/ SCADA using wireless communication.	We undestand that this Thermal and humidity sensor needs to be provided for Switchgear. For GIS Thernal Sensor shall be provided in Cable Compartment For AIS- Thermal Sensor shall be provided in Bus-bar, Breaker and Cable compartment. Humidity Sensor shall be provided in Cable compartment. Please confirm.	Not Required
Commercial Points						
1	Tender Document	Page 7 of 637	1.7 Qualification Criteria b)	The bidder should have own manufacturing facility to manufacture E-House of required specifications and should have in-house facilities for acceptance tests as per technical specifications. Switchgear must be of same make of E-house. Bidder must submit undertaking in this regard.	The bidder shall get the fabrication of E House done at shelter manufacturer's works followed by acceptance tests as per technical specifications. Assembly, Testing(I-FAT) at Shelter manufacturer's works shall be done under OEM supervision. OEM shall be responsible for the warranty for E-house.	Accepted with condition that Bidder has to submit all relevant documents & their Agreement Letter with E-House Fabricator mentioning how they are confirming to Bidder's Design & Standards and Bidder should be responsible for QA/QC.
2	Tender Document	Page 14 of 637	7.1. Special Conditions of Contract	Delivery period shall be 120 days from date of receipt of release order / CAT-A issuance, whichever is later	Delivery period shall be 10 months from date of receipt of clear drawing approval.	It will remain same as per tender terms

3	Tender Document	Page 14 of 637	7.1 Terms of Payment:	Supply of equipment 10% advance against CAT-A approval and submission of Advance BG of equivalent amount valid till the delivery of the equipment. 80% within 90 days against delivery of the complete equipment and submission of certified invoice. Balance 10% within 90 days against installation, testing and commissioning of the equipment.	Please amend the said clause as below: Supply of equipment 10% advance against CAT-A approval and submission of Advance BG of equivalent amount valid till the delivery of the equipment. 80% within 90 days against delivery of the complete equipment and submission of certified invoice. Balance 10% within 90 days against installation, testing and commissioning of the equipment. The last 10% payment shall be released immediately if installation and /or commissioning is delayed for reasons not attributable to Bidder.	It will remain same as per tender terms
4	Tender Document	Page 14 of 637	7.1 Terms of Payment:	Installation, Testing Commission of the equipment 100% within 90 days against successful installation, testing and commissioning of the equipment alongwith statutory approval and service membership and submission of certified invoice.	Please clarify the meaning of Service membership.	Service Membership is not required
5	Tender Document	Page 24/637	1 SCOPE	All type of Civil Work in switchyard / Transformer yard.	Please share soil data and quantify civil work to be done.	In scope of Associate
6	Tender Document	Page 24/637	1 SCOPE	This specification covers the Design, Manufacture, Supply, Transport, Assembly of Shipping sections at Site, Supervision of Erection, Testing & site Commissioning of Containerized Substation.	Please confirm where the scope of bidder includes Erection, Testing and commissioning as well or supervision only.	Scope includes Erection, Testing and commissioning.
7	Tender Document	Page 298/637	11.0 GUARANTEE	V. The outage period i.e. period from the date of failure till unit is repaired / replaced shall not be counted for arriving at the guarantee period. Bidder shall further be responsible for 'free replacement' for another period of THREE Years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the TPCODL/TPNODL/TPSODL/TPWODL.	Please amend the said clause as below following the agreement between SEIL and TPWODL RO No. : 5000024490 RO Date: 19.10.2023 : "Latent defect shall be part of the original warrantee period only."	Accepted
8	Tender Document	Page 515 / 637	15.0 LIQUIDATED DAMAGES	Liquidated damages @1% of the total executed contract value per week or part thereof, for the period of delay in integrated completion, subject to maximum 10% of the value of the contract shall become leviable without prejudice to other rights of the TPCODL. This amount shall be recoverable from any amount due or becoming due to the Business Associates under this or any other contract. In specific cases, TPCODL reserves the right to apply LD only on the unexecuted portion of the supply and works for standalone use, provided full quantity is executed within a maximum 30% additional time. Deduction of LD shall be on landed cost i.e contract value inclusive of taxes and in pursuant statutory compliance GST would be applicable at the stipulated rate and the same shall be borne by Business Associate. In case of LD deduction, a GST invoice shall be issued by TPCODL as a proof of deduction/ recovery.	Please amend the said clause as below following the agreement between SEIL and TPWODL RO No. : 5000024490 RO Date: 19.10.2023 : "LD@ 1% per week shall be applicable only on unexecuted order value. Overall LD applicable under this contract shall be maximum of 10% and applicable only on unexecuted order value."	Since this is an integrated Project, unexecuted order value will not be applicable here.

9	Tender Document	Page 519 / 637	21.2 Limitation of Liability	The total liability of Associate against any contract shall be limited to the Total All Inclusive Contract Value.	Please amend the said clause as below following the agreement between SEIL and TPWODL RO No. : 5000024490 RO Date: 19.10.2023 : "Notwithstanding anything in the Contract to the contrary and to the extent permitted by applicable law, (a) in no event shall either Party, its officers, directors, or employees be liable for any form of incidental, consequential, indirect, special or punitive damages of any kind, or for loss of revenue or profits, loss of business, loss of information or data, or other financial loss, whether s uch damages arise in contract, tort or otherwise, irrespective of fault, negligence or strict liability or whether such Party has been advised i n advance of the possibility of such damages; and (b) the maximum liability of the Seller for any and all claims, losses, damages, costs and expenses arising from or on connection with this Contract shall not exceed the Rate Contract Order Value."	It will remain same as per tender terms.
10	Tender Document		General	Covid Disclaimer Clause	Request TPCODL to add this clause as below following the agreement between SEIL and TPWODL RO No. : 5000024490 RO Date: 19.10.2023 : "TPCODL shall include relaxation (if any) in line with the Gov. Guidelines/Circular pertaining to Covid as applicable in the said clause."	Such situation, if arises, will be reviewed to include it under Force Majure Case.
11	Tender Document		General		Request TPCODL to add this clause as below following the agreement between SEIL and TPWODL RO No. : 5000024490 RO Date: 19.10.2023 : Export Compliance: The deliverables provided by BA under this Contract contain or may contain components and/or technologies from the United States of America ('US'~, the European Union ('EU") and/or other nations. TPWODL acknowledges and agrees that the supply, assignment and/or usage of the products, software, services, information, other deliverables and/or the embedded technologies (hereinafter referred to as 'Deliverables1 under this Contract shall fully comply with related applicable US, EU and other national and international export control laws and/or regulations. Unless applicable export license/s has been obtained from the relevant authority and the BA has approved, the Deliverables shall not (i) be exported and/or re-exported to any destination and party (may include but not limited to an individual, group and/or legal entity) restricted by the applicable export control laws and/or regulations; or (ii) be used for those purposes and fields restricted by the applicable export control laws and/or regulations. TPCODL also agrees that the Deliverables will not be used either	In case any export/import of any component/technology, same should be in strict compliance to Indian laws and regulations.

Sl. No.	Comment to above document - item no.	Section	Clause	Page no.	Specification requirement	C/D	Comments / Clarifications submitted	TPCODL Response
		General			Statutory Approval / Load Statuatory Approval		We shall provide technical support for CEIG Approval. CEIG approval shall not be in our scope	As per TS
		General			Service Membership		Please provide more details regarding Service Membership	Not Required
		General			Plot details and address		Please share site details for site visit	For Site Visit PL contact NEG Dept.
		General			Make List		Please provide Approved Make list for all major equipments	Relay Make : Siemens,ABB, Schneider Aux Relays: Alstom/GE,
		General			Guarantee / Waranty requirement		Please specify the exact Warranty requirement	As per TS. Warranty shall be on complete E-House

		General			Delivery period shall be 120 days from date of receipt of release order / CAT-A issuance, whichever is later		Delivery shall be 12 months from Drawing approval.	As per TS.
		Technical Specification	BOQ	21	2.11kV SSIS Panel 1250A, 25KA CU Bus Bar-3 Nos		We understand that the 11kV SSIS Panel 1250A 25kA CU Bus bar - 3 Nos are conneted with 2 Nos Incomer and 1 No Bus Coupler with single bus configuration.	It will be a SBB design with 2 Incommers & Sectionaliser
		Technical Specification	BOQ	21	3.11kV SSIS Panel 1250A, 25KA CU Bus Bar-16 Nos	C	We understand that the 11kV SSIS Panel 1250A 25kA CU Bus bar - 16 Nos are all outgoing feeders and connected with same 11kV Bus.	YES
		Technical Specification	General			C	Please share the Plot layout for understanding the propose E house and Transformer area	Pl plant a site visit for the same
		Technical Specification	B	21	The Bidder has to do the necessary civil work for installation & commissioning of E-House along with required HT & Control cable trench at site..	C	Please inform if scope of cable trench is between E-House and transformer.	Except Power Transformer all in Bidder scope
		Technical Specification	B	21		C	Please inform if civil deign and execution scope is for E-House and cable trench civil work.	Except Power Transformer all in Bidder scope
		Technical Specification for SITC of Containerized Substation 2 X 20/25 MVA	5.2	7 of 15	Grounding	C	Grounding-We are not considering earth grid below ground, earthing of equipment installed outside E-House and earth pits in our scope. Please confirm.	Except Power Transformer all in Bidder scope
		Technical Specification for SITC of Containerized Substation 2 X 20/25 MVA	5.4	7 of 15	Lighting	C	We are considering illumination inside E-House and on the periphery of the E-House. We are not considering illumination for outdoor equipment such as transformer yard. Please confirm.	Except Power Transformer all in Bidder scope
		Technical Specification	General			C	Please provide us soil report for doing civil design	During Detailed Engineering
		Technical Specification	BOQ	21	33/11kV, 16/20.0 MVA oil cooled outdoor type Power Transformer: Free Issue by TPCODL	C	Requested to arrange the deputation of Transformer manufacturere experts for doing the necessary testing & commissioning. Kindly confirm	Ok
		Technical Specification	BOQ	21	E House Enclosure (L-20Mx W4.2Mx H4.0M) with ladder & Access Platform	C	We Understand the size of E house are tentative. We will revert after preparing E house layout	Noted
		Technical Specification	BOQ	21	Digital solution - Asset condition monitoring with 1 year Subscription of predictive support & ETE for two Transformers	C	Kindly elaborate the complete scope and requirement of asset condition monitoring and predictive support. What is meant by ETE? Is it digital solution required only for 2 nos. of transformers? Is cloud based SaaS offering acceptable	Not required at all. This is a vendor specific product
		Technical Specification	BOQ	21	The Bidder has to do the necessary Scada integration of PSS along with TPCODL existing SCADA system	C	Please provide details of substation in which SCADA is to be integrated	Mentioned in TS.
		Technical Specification	I.	22	Bidder has to obtain all necessary statutory approval from the competent authority for charging of E House including power transformer.	C	We shall provide technical support for CEIG Approval. CEIG approval shall not be in our scope	As per TS
		Technical Specification	SLD	22	SLD	C	Please share the SLD for better understanding the scheme	Mentioned in TS.

		Technical Specification for 33/11kV 20/25 MVA Power Transformer ENG-EHV-1003	Option-1 and Option-2		Option 1: (33KV Indoor AIS/GIS and 11KV indoor AIS) Option 2 : (33KV Outdoor Switchyard and 11KV indoor AIS)	C	We have considered with option -1 (33KV Indoor GIS and 11KV indoor AIS) only. Please confirm.	Noted
		Technical Specification ENG-LV- 3021-R-01	General Technical requirement	4 of 16	Feeder details	C	We have considered the feederlist as per the specification for 415V ACDB	Noted
		Technical Specification ENG-EHV-1045	General Technical requirement	3 of 8	FOR VRLA BATTERY 24/48V, 100/150H (2V Cell Voltage)	D	We propose 110V VRLA battery , Kinfly confirm.	48VDC
		Technical Specification	General			D	We understand that the supply, installation, testing and commissioning of 33kV side Incoming cable is not in our scope. If it is in scope then specify the source subsatation along with approx length.	Scope as per TS
		Technical Specification	General				We understand that the 33/0.433kV Aux. Transformer - 1 No is in our scope. Pl inform this is a dry type transformer. Also requeted to please share the Technical specification for the said transformer.	Oil Cooled Station Xmer
4	1	ENG-EHV-GIS	5.1	306	The Switchgear Panel shall be Indoor, Double Bus Bar, SF6 Gas Insulated, Three phase, sheet steel construction encapsulated, assembled to form free standing, self-supporting dead front structure, suitable for accommodation within building and capable of continuous operation under the climatic condition as defined in the specification		We understand that switchgear shall have single busbar system however it is mentioned as double bus bar. Kindly reconfirm.	It shall be Single Busbar System
5	1	ENG-EHV-GIS	5.1	306	The equipment offered shall be adequately protected from all type of system voltage surges and any equipment necessary to satisfy this requirement over and above what is specified.	C	Any type of system studies are not considered in the offer. If applicable, the same shall be done by the main bidder. CTs, PTs, and LA, wherever applicable shall be as stipulated in tender documents.	CT/PT/LA shall be detailed in detailed Engineering. However the bidder applying to this tender is considered as Main Bidder
6	1	ENG-EHV-GIS	5.1	306	The gas density sensor shall also be provided with Arcing contact and self-supervision contact.	C	Our SF6 gas monitoring system is bases on well proven & highly reliable magnetic coupling principle will displayed only the changes in gas density and it is completly independent of temperature dependent changes and it is also independent of any aux supply. In case of interal arc when pressures goes beyond the threshold value guided by IEC, the rapturing disc will open & allowing the high pressure to release into the atmosphere. In case of leakage of SF6 gas below the opearating pressure the gas monitoring system indicates the low pressure. Gas density monitor having Optionally Signaling switch "1 CH.OV." (changeover contact)for remote electrical indication.	If such density monitors are available in market then it is to be provided. Else we need two change over contacts stage wise. Stage one is for gas pressure low and stage two is for gas pressure lock out.
10	1	ENG-EHV-GIS	5.1	307	(h) All the HV design shall ensure conformity to IEC-62271-200 Appendix 'A' and must be Type tested for Internal Arc Test. It shall withstand 26.3 kA for 1 sec. The suppliers shall submit Type Test report from CPRI/ERDA to prove the above.	D	Type tests are performed in internationally reknowned laboratory such as KEMA / PEHLA. Since the swithgear design is global, type tests are performed from parent factory. Type tests are not repreated in India for HV.	Noted
11	1	ENG-EHV-GIS	5.1	309	p) Capacitor bank switching device shall be provided with suitable gate interlock mechanism with castle key along with timer to ensure safety.	D	1) We kindly request you to confirm the requirement of capacitor bank switching. 2) Please clarify which typical feeders are to be offered with Castle key arrangement.	No Cap Banks

12	1	ENG-EHV-GIS	5.1 r) & 5.4 a)	309 & 311	5.1 r) For this, each unit shall be provided with facilities ("repair openings") which will grant access to HV parts, thus allowing purchaser to conduct repairs inside the gas tanks at site, maximizing availability of the switchboard. 5.4 (a) The CB compartment shall be provided with repair opening sealed with 0- ring so that ay maintenance if required can be carried out.	C	"The switchgear is enclosed in a "sealed-for-life" welded SF6 gas vessel, in line with the definition as laid out in IEC 62271. There is no necessity to open the gas vessel during its service life. Repair openings increase the probability of SF6 leakage and cannot provide wide & convenient access to the equipments inside the gas tank, as the GIS itself is a compact design.. It also entails gas handling which is not recommended at site, considering the fact that it has to be done in a clean environment to prevent any contamination that can lead to poor SF6 dielectric performance later. Hence "repair openings" are not applicable.	Accepted. But a detailed explanation on site repair to be provided in reply to this document. Site repair should not force complete outage of the station
13	1	ENG-EHV-GIS	5.1	309	s) Each switchgear panel shall have 20% spare terminals. All equipments mounted on front side of panel shall have individual nameplates with equipment designation engraved.	D	each panel shall have a common name plate.	Noted
14	1	ENG-EHV-GIS	5.2	309	The busbars of each bay shall have separate gas compartment such that any gas leakage will be localised to one bay only.	C	We would like to clarify here that we are offering a SF6 Gas Insulated switchgear with touch proof solid silicone insulated Busbar which is outside SF6 Gas compartment. Hence, in case of Busbar outside gas compartment with touch proof solid silicone insulation this point is not applicable. If in case of Busbar inside Gas: As per our standard type tested product we have a sepearte compartment for CB & Cable Termination however BB compartment shares common gas compartment for each bus section as our TT design offers panel to panel coupling inside SF6 gas.	This shall be as per TS
15	1	ENG-EHV-GIS	5.2	309	All the live parts including the main busbars shall be encapsulated in stainless steel enclosure filled with SF6 gas.	D	As proposed in Sr.14; In case of Busbar outside gas compartment with touch proof solid silicone insulation CB & 3-pos disconnector shall be encapsulated in stainless steel enclosure filled with SF6 gas. In case of Busbar Inside Gas: All HV live parts including panel to panel coupling shall be encapsulated in a AL-Alloy enclosure with SF6.	Same as above
16	1	ENG-EHV-GIS	5.2	310	Each separate compartment or gas zone must be provided with its own device for monitoring continuously the gas density. These devices shall be arranged to give individual compartment indication in the local control units and initiation of remote alarms.Means shall also be provided to facilitate the checking of moisture content and gas purity. All gas density monitors shall be temperature compensated type with sufficient No. of alarm and lockout contacts for local, remote and SCADA indications.	D	The NO/NC contacts shall be provided for Gas Monitoring. All gas density monitors shall be temperature compensated type with sufficient No. of alarm and lockout contacts for local, remote and SCADA indications. This has below mentioned Features • Self-monitoring; easy to read • Independent of temperature and pressure variations • Independent of the site altitude • Only responds to changes in gas density • Option: Signaling switch "1 CH.OV." (changeover contact)for remote electrical indication.	mentioned above, 2 stages each for gas pressure low and lock out, for each stage 2 number change over contacts

17	1	ENG-EHV-GIS	5.2	310	The panels will be transported to site as completely tested units so that Gas work should not be required at site.	C	We confirmed that the panels will be transported to site as compltely tested units. As proposed in Sr.14; In case of Busbar outside gas compartment with touch proof solid silicone insulation no need of any gas works required at site. In case of Busbar Inside Gas: In our true GIS design, the busbars are connected at site and filled with SF6 gas as one time activity only during initial erection of panels. After energisation/ commissioning of panels, we do not recommend any periodic gas top-ups during anticipated service life of GIS under normal operating conditions.	As requested point number 14 to be made clear in joint meeting
18	1	ENG-EHV-GIS	5.2.2	310	In case of extensive and repeated gas leakage at any time during the warranty period, the Purchaser shall have the right to request the bidder to replace the part of the assembly, which caused the leakage. All costs associated with such works shall be borne by the Bidder.	D	After energisation/ commissioning of panels, we do not recommend any periodic gas top-ups during anticipated service life of GIS under normal operating conditions. Some GIS manufactuers' recommend regular gas top-ups at site either in normal conditions or fault conditions, which comes under gas handling at site The same is accepted only in condition where the enclosure is found faulty / having manufacturing defect.	accepted.
19	1	ENG-EHV-GIS	5.2.3	310	GAS HANDLING EQUIPMENT A mobile Gas handling unit with SF6 gas shall be provided for each new substation to permit emergency topping up of gas in the switchgear in the event of leakage. An approved portable SF6 gas leakage detector shall also be provided for each new substation.	C	As proposed in above; In case of Busbar outside gas compartment with touch proof solid silicone insulation no need of any gas works required at site. The event of gas leakages is also nigligible. In case of Busbar Inside Gas:After energisation/ commissioning of panels, we do not recommend any periodic gas top-ups during anticipated service life of GIS under normal operating conditions. Hence we do not emphasis to keep & maintain such extra equiments.	Possibility is less but it is not like this can not happen. The utility should be ready for any possible response against major minor problem so accordingly this point should be complied
20	1	ENG-EHV-GIS	5.2.3	310	Gas leakage is detected by fall in gas density & the same can be reported through a digital relay vide two levels alarm - low & very low.	C	NO/NC contacts shall be made available for gas monitoring. Digital signals are not offered.	Digital signal means the gas density change over contacts to be wired with DC potential to relay for necessary annunciation

21	1	ENG-EHV-GIS	5.4	312	j) The circuit-breaker has to control at least 10,000 Make-Break cycles (One operating cycle of making & Breaking) operations at rated current or 100 breaking operations at rated short-circuit breaking current without maintenance. The mechanical life of the vacuum interrupter shall comprise at least 20,000 operating cycles. k) The operating mechanism shall be maintenance- free without time limit up to 10,000 operating cycles. Its service life has to comprise at least 30,000 operating cycles.	D	j) The circuit-breaker has to control at least 10,000 Make-Break cycles (One operating cycle of making & Breaking) operations at rated current or 50 breaking operations at rated short-circuit breaking current without maintenance. k) The operating mechanism shall be maintenance- free without time limit up to 10,000 operating cycles. Its service life has to comprise at least 10,000 operating cycles. Customer is requested to state the specific reason for 30,000 operating cycle service life, such as multiple operations in a day is envisaged for capacitor switching at site. In IEC there is no such clause which defines number of specific breaking oprations at rated short circuit current. IEC also does not specify any type testing criteria for performing specific number of SC breaking operations. The same can be as per manufacturers design.	if there is no such clause in IEC then how it can be claimed for 50 operations? Please meet the specification requirements
22	1	ENG-EHV-GIS	5.5	312	a) Each Panel shall have Gas insulated Bu bar compartment.	C	As proposed in Sr.14; Busbars with touchproof solid Silicone insulated outside gas compartment is in successful operation at OPTCL SCRIPS PMU, Bhubaneshwar city Solid Silicone insulation for busbars offers the following distinct benefits to the user as follows: 1) Superior dielectric features (4 times) compared to SF6 gas. 2) Tried and tested as insulation even in EHV switchgear. 3) Hydrophobic (water rejecting) 4) 33kv touch proof capability avoiding any short circuit faults. 5) No gas work at site supporting quick installation and extension. 6) Approval by PGCIL & State utilities in IPDS schemes. 7) Environment-friendly : Reduction in overall SF6 content in switchgear as per kyoto protocol (India is also a signatory) Hence silicone insulated busbars outside gas compartment is a superior design and may be permitted as an alternative to busbar inside gas compartment. Hence request you to kindly	accepted for solid silicone insulation but as stated above, same point to be cleared in joint meeting with bidder
23	1	ENG-EHV-GIS	5.5	312	e) Busbar compartments shall have repair openings to get the access for maintenance. It shall be possible to earth all busbar sections in make-proof way.	C	"The switchgear is enclosed in a "sealed-for-life" welded SF6 gas vessel, in line with the definition as laid out in IEC 62271. There is no necessity to open the gas vessel during its service life. Repair openings increase the probability of SF6 leakage and cannot provide wide & convenient access to the equipments inside the gas tank, as the GIS itself is a compact design.. It also entails gas handling which is not recommended at site, considering the fact that it has to be done in a clean environment to prevent any contamination that can lead to poor SF6 dielectric performance later. Hence "repair openings" are not applicable.	Replied above

24	1	ENG-EHV-GIS	5.6	312	The Current Transformers shall be of Epoxy Cast Resin Type with Window type construction	D	The Current Transformers shall be of Epoxy Cast Resin Type with Ring type construction	Noted
25	1	ENG-EHV-GIS	5.7	313	The Voltage Transformer shall be_ of Epoxy cast resin Type and mounted horizontally/ Vertically, metallic plug-in design and shall be touch proof and protected by HRC fuses on both primary and secondary sides.	D	1. Primary fuse is not applicable for 833kV GIS. 2. Secondary side of PT shall be protected via MCB.	Noted
26	1	ENG-EHV-GIS	5.11	314	For safe isolation and earthing of the busbars and feeders, high speed fault-making spring driven disconnector and earth switches shall be provided.	C	High speed fault making earth switch is not applicable for busbars. Bus earthing is envisaged through three-position switch of bus coupler.	Fast acting earthing switches are requirement of 66 KV and above GIS not for 33 KV
28	1	ENG-EHV-GIS	5.17	317	It shall be possible to carry out the cable testing trough separate "cable test sockets" without disconnecting cable termination from the panel and with busbars in "live" condition.	C	Cable testing can be done with CB off condition. However, the same is not considered in the offer.	We want cable testing from any side of the cable i.e. source or receiving end or from both and it is recommended to test the cable while it is connected to the GIS bay. bidder may provide suitable pockets and plugs to carry out such testing
30	1	ENG-EHV-GIS	5.19	318	b) An earthing conductor of 40x10 sq mm Tinned Cu (minimum) shall-be provided,	C	Size of the earth conductor shall be dependent on the earth bus calculations as per switchboard parameters.	Noted
31	1	ENG-EHV-GIS	5.30	320	For Incoming feeder, Bus Bar/ Sections and Out Going Feeders, Electronic Energy Meters shall be provided on the Control and Relay Panel. The LCC shall have electronic meter showing the current and voltage readings of the individual bay.	C	33kV GIS local control panel shall contain only ammeter and voltmeter. Other meters, if applicable; shall be in scope of CRP.	Not required
32	1	ENG-EHV-GIS	7	321	For Switchgear Type Test p) Test after erection on site. r) The PD Test (Value shall be less than 5pC).	C	p) Shall be part of site test. r) Value of PD shall be in line wirh IEC stabdards.	Noted
33	1	ENG-EHV-GIS	7	322	For Current Transformer Optional Tests. a) Chopped Lighting impulse test as a type test	C	Offered 33kV GIS shall be type tested as per medatory applicable types tests. Optional tests are not performed on the product. If cistomer insists, optional tests can be performed in a reputed lab. However the type tests shall be subjected to type test charges borne by customer and availability of the slot at the lab for performance of the test. Delivery of the 33kV GIS shall not be linked with the slot of the test provided.	Noted
34	1	ENG-EHV-GIS	7	323	For Voltage Transformer Optional Tests. a) Chopped Lighting impulse test as a type test	C	Offered 33kV GIS shall be type tested as per medatory applicable types tests. Optional tests are not performed on the product. If cistomer insists, optional tests can be performed in a reputed lab. However the type tests shall be subjected to type test charges borne by customer and availability of the slot at the lab for performance of the test. Delivery of the 33kV GIS shall not be linked with the slot of the test provided.	Noted
35	1	ENG-EHV-GIS	7	323	For Circuit Breaker, Type Tests o) Double earth fault tests p) Capacitive Current switching tests.	C	o) Double earth fault test is required, in case the CB is connected to non-effectively earthed neutral systems. However, CB is rated for First pole to clear factor of 1.5. p) CB is type tested for Capacitive Current Switching. However, CB with capacitor bank switching is a special reaquirement and comes with additional arrangement of provision of capacitor switching, we kindly request the customer to confirm the requirement of capacitor bank switching. If yes, in which feeders.	Noted
36	1	ENG-EHV-GIS	17.1	326	17.1 SPARES: f) Tulip/ Finger contact	C	Not applicable as per standrad type tested design of 33kV GIS, hence not offered	Noted

37	1	ENG-EHV-GIS	17.1	326	17.1 SPARES: In addition to above bidder shall submit recommended list spares for 3 years of operation, if any with unit prices and recommended quantity.	C	Since Gas Insulated Switchgear is a maintaince free switchgear hence there are no such madatory spare list. However if we still required then please provide the required spare list.	Spare list with PU cost to be shared
38	1	ENG-EHV-GIS	17.2	326	17.2 SPECIAL TOOLS A& GAUGES:	C	Tools are not included in scope of supply other than operating handless for CB, DS and ES.	Noted
40	2	General	-	SLD	Tender SLD	C	Tender SLD is not available. Kindly share the same.	Available in TS
41	2	General	-	SLD	Protection SLD	C	Protection SLD is not available, Kindlhy share the same.	DDE
42	2	General	-	Type test		C	As per IEC 62271 -200 type tests as Cl. 6 , repetition of Type Testing is required if any one of the following conditions is true: 1. Change in design of switchgear from the orignal Type tested design OR 2. Requirement of Type test within relevant IEC standard has been changed Both the above mentioned points (1,2) are not applicable for our offered design 8DB10 of 33kV GIS. Present Type test Report though are older than 10 Years but are still valid and Type test need not to be repeated since none of the above 2 conditions are applicable for repetition of type tests. The supporting letter in this regard from HQ can be submitted if required.	Noted
43	2	General	-	BOQ	33kV GIS - BOQ	C	Panel wise BOQ of 33kV GIS is not available. Kindly provide the same for technical offer preparations.	Pl refer Tender Doc
		Annexure-I	Section-C/	Page no. 86	Proposed SAS Architecture Type # 1 & Type#2	C	Pls clarify the SAS Architecture to be followed as there are two types of SAS Architectures mentioineed	Pl refer section-A of SAS
		Annexure-I	Section-C/Page no. 86	Page no. 86	Proposed SAS Architecture Type # 1 & Type#2		We understansd that any Router cum Firewall is not bidder scopeof supply for this package	As per TS
		Annexure-I	Section-C/Page no. 86	Page no. 86	Proposed SAS Architecture Type # 1 & Type#2		We understansd that integration activity with MCC/BCC/PDS/QAS shall be taken care by TPCODL.	As per TS
		Section-C		Page no. 103 of 142(pdf 139 of 637)	Pre-Wired RTU Panel BOM		There is a detailed BOM along with Spares is mentioned in pdf sheet 139 to 143 for 11x RTU panles.Pls clarify the scope of supply	Consider for one RTU
		Annexure – 6:	GTP for Proposed Substation Automation System		Digital Inputs (Physical)/Digital Outputs (Physical) & Analog Inputs (Physical)		Pls clarify the physical I/Os requiredcion offered RTU	As per TS
		Annexure – 6:	GTP for Proposed Substation Automation System		Module replacement in RTU:RTU Hot-Swappable module		The Hot replacement Feature posses risk of Safety for the personal doing maintenance. In addition to that also it may lead to malfunction of device if the activity is not properly and carefully carried out.	As per TS
		Annexure – 6:	GTP for Proposed Substation Automation System		Software – All diagnostic tools, simulator tool, maintenance tools, configuration application for database and process control program development, documentation and maintenance		We understand that only RTU Configuration tool is requited for supply.Pls clarify.	As per TS
		Annexure – 6:	GTP for Proposed Substation Automation System		SMS Utility software for Main & Stand by RTU		We understand that the same is not required for RTU based system	As per TS
		pdf sheet 147 of 637			Managed Layer - 2 Switch		Pls clarify the quantity & Port Configutation for supply	During Detailed Engineering

		Clause 9.0	Section_A/Training(pdf sheet 79 of 637)		Training		We shall be offering 1-2 mandays, one time training at TPCODL/bidder'spremises.Pls acknowledge	This cannot be freezes at this stage
		Clause 8.7.3 & 8.7.4	Section-A/pdf sheet 76 of 637		AMC/SLA Requirement		We understand that any SLA or AMC is not applicable for ths tender	Noted
		Clause 8.7.5	Section-A/pdf sheet 78 of 637		The Bidder shall guarantee the availability of spare parts and hardware maintenance support services for all System equipment for a minimum period of 15 years. Subsequent to this minimum support period, the Bidder shall provide to TPCODL a minimum of two year's advance notice of their intent to terminate such services		Post warranty period, we shall be offering functionally equivalent spares on chargable basis.	As per TS
		Clause 1.25	Section-B/RTU/pdf sheet 89 of 637		1.25 All the cards/modules of the RTU, Ethernet Switch etc. must have conformal coating for protection against harsh environments.		Our offered RTU is suitable for harsh environments so asny separate coating is not required.Pls acknowledge.	As per TS
		Clause 1.43	Section-B/RTU Cyber Security Audit/pdf sheet 99 of 637		a. TPCODL reserves right to nominate any site limiting to 4 numbers for cyber security audit. Bidder to note that Gaps identified during the audit shall be rectified, closed and re-audited by the bidder. Bidder Shall submit and certify all the 11 Nos. sites are Cyber Security Compliant as per the NCIIPC, CERT-IN and other standard mentioned in the RFP. Bidder shall submit the List of Auditor (Certified by GoI for OT Technology) for selection of auditor for this project and Bidder to consider Audit Charges in the bill of the material as applicable.		We understand that any cyber security audit is not applicable for this tender.	As per TS
		Clause 1.48	Section-B/RTU Cyber Security Audit/pdf sheet 111 of 637		1.48 Temperature & Humidity Sensor		We understand that any T&H Sensor is not applicable for this tender.	Not requird
		Section-B	RTU /pdf sheet 115 of 637		b. Preferred make of panel shall be o RTU – Rittal make		We shall be offereing Siemens,India make RTU panel	Rittal is panel manufacturers name.
		Specification No: ENG-EHV-1011/5.1.4/7 of 32 Specification No: ENG-EHV-2008(R01)/5.1/11 of 35					Offered panel is suitable to mount on the lavelled floor or grouting channel at site . Separate base frame with panel / for panel is not required . Hence separate baseframe channel is not offered.	As per Manufacturer's Type Tested design
		Specification No: ENG-HV-2008 (R01) /5.2, C) / 15 of 35					11KV Cassette type breaker is offered . Brekaer handeling trolley will be offered with each switchboards as a stanadard supply of boards. For 33KV Panel will be on truck.	Noted
		Specification No: ENG-EHV-2008(R01)/5.1 / J/13 of 35 and Specification No: ENG-EHV-1011/5.1 / J/13 of 32					Online temp monitoring , Heat & Humidity Sensors are not in scope. We are offering thermostate and space heater in the panel. NO Online temp monitoring & No Sensor for humidity , No wirless comunication based equipment to be offered.	Noted
		Specification No: ENG-EHV-2008(R01)/4.6.1/6 of 35 and Specification No: ENG-EHV-1011/4.6.1/6 of 32					CT Secodary will be 1A instead of 5A. we have checked CT PS sizing calculation as per provided specification CT details and same is not possible to achieve with CT secondary 5A. Hence we are proposing to change the CT secondary 5Amp to 1Amp (for all CT core). With this we can achieve the desired values for class PS and Transformer differential core. Sizing calculation is attached for your reference kindly review and provide acceptance. Same is applicable for 33KV & 11KV both the boards.	1 Amp secondary is accepted.

		Specification No: ENG-HV-2008 (R01) /5.1, E) / 11 of 35					as per SPEC requirment -11KV Secondary componanats on the LV height will be between 1700mm to 2700mm eight. To main tain the same , the cutout for TVM meter will be mounted on the BUS PT /BRPT panels with respective panel nameplate and nomenclature. TVM Meter is not in bidder's scope only wiring and cutout will be provided.0 Same is apaplciable for 33KV.	TVM not in scope.
		Specification No: ENG-EHV-2008(R01)/5.1/B/11 of 35 and Specification No: ENG-EHV-1011/5.1.2/7 of 32					For 33kV NXAIR H: Frame - 2.0 mm, High Voltage Door - 2.0 mm, Low Voltage Door - 2.5 mm, Pressure Relief Flaps - 1.0 mm, Partitions between compartments - 2.0 mm, Shutters 1.0 mm, Partitions between panels - 2.0 mm, Bottom Plate - 2.0 mm, Rear Side Covers - 2.0 mm, End Covers - 2.0 mm. Structure shall be of bolted type. NXAir: Frame - 2.0 mm, High Voltage Door - 2.5 mm, Low Voltage Door - 2.0 mm, Pressure Relief Flaps - 1.0 mm, Partitions between compartments - 2.0 mm, Shutters - 1.0 mm, Partitions between panels - 2.0 mm, Bottom Plate - 2.0 mm, Rear Side Covers - 2.0 mm, End Covers - 2.0 mm. Structure shall be of bolted type. For Gland plate 3MM can be offered	Noted
		Specification No: ENG-EHV-2008(R01)/5.3/B/16 of 35 and Specification No: ENG-EHV-1011/5.3.4/12 of 32					For 11kV NXAir panels: Offered panels are type tested as per IEC 62271-200 without the use of any busbar shrouds, sleeves, insulation and phase barriers (in cable chamber). Hence, these are not necessary. For 33kV panels: Offered panels are type tested with silicon rubber shrouds only at main busbar joints and the same shall be provided. We shall provide Raychem sleeves on main busbars and polypropylene phase barriers (in cable chamber).	As per Type Tested Design
		4.9/ E-4-2 (4.10)					MFM OR TVM ,,,DLMS compliant Digital energy meter (TVM) of class 0.2s with optical port and communication port for remote reading. .Non tariff based , non abt type TVM secure make premier 300 will be offered. For MFM ----with MFM model LM1350 of Rishabh make. Catalog atatched	Noted
		5.15/C					We will offer one no of CET & one no of BET without PT & VCB or annunciation	As per TS
		5.1.2					Offered panel shall be HxWxD: 3320x1000x3200--33KV (with 1 set of CT) Offered panel shall be HxWxD: 2500x 600/800x 1500 (with 1 set CT)	Noted

		5.1.4					We have not considered power cables, cable glands, cable supports, cable lugs, termination kits, sealing material for cable entry, etc in our scope. We shall only provide cable termination facility in offered panels. Note: Offered panel is suitable for direct cable termination. So, cable support is not required.	As per TS.
		5.4					Offered panels have multi-core CTs, hence, we have combined CT cores wherever possible. Request you to refer attached Scope of Supply and confirm the same. Offered CT are Wound type CT OR Block type CT which is as per our offered type tested design. Please refer the adjacent CT cores , Second set CT will cause additional space, routing of copper flats, rearbox, and other constraints. providing the single set CT is best optimized solution acheieved in terms to save the space/ panel foot print , additional rear box , user aceesibility & easiness of cable terminations etc.	CTs with only type tested product to be taken. Any ratio of secondary value 1A or 5A can be accepted
		General					Laptop, software, communication cable, FO cable, RJ45Cable, ethernet switch , LIU , Convertors are not IN HT 11KV& 33KV Panel scope. Same is not offered.	As per TS
		General					Cleint to provide the aux supply AC & DC at any point of the Switchboard . Internal looping and aux supply distribution will be in scope of bidder viw MCB.	As per TS
		General					We have not considered any System Studies in our scope like Load Flow, Insulation Co-Ordination, Relay Settings and Co-Ordination etc. in our scope. If required, please consider the same from your end. Our scope shall be limited to supply of relays only. We have not considered any installation, testing, commissioning, training at our works or training at site in our scope. If required, we shall submit our service offer for the same	Noted
		General					We have not considered any dummy panels in our scope, Request you to inform exact details for dummy panels in case they are needed	Noted
		General					SCADA item, Relay software, Ethernet switch, LIU, Convertor, LAPTOP, FO cable will not be part of our supply.	As per TS
		General					Standard wire sizes should be offered mentioned in the scope of supply BOM. Please refer and confirm.	As per TS
		General					same shall be as per type tested design /as per IEC of the offered NXAIR & NXAIR-H Panel.	Noted

		General					Inspection and Testing shall be as per attached FAT. Only fully assembled switchboard shall be offered for inspection of routine tests. We shall submit test certificates of bought out items and no separate tests shall be conducted on these equipments at our works. Inspection shall be carried out as per our standard quality assurance plan(attached for your ref). Any type test is not considered in our scope. However, we shall submit type test reports for type tests carried out on similar product. Any stage inspection is not envisaged. We have not considered any tests at site.	Noted
		General					Anti-pumping is an in-built feature of offered VCBs, hence separate relay is not offered.	Noted
		General					Quality Assurance As per attached QAP.	As per TPCODL QAP
		General					Packing procedure will be as perbidder's standard, Enclosed herewith for reference	Noted
		General					Withdrawable PT -In 33KV Line PT will be fixed & bus pt will be withdrawable	There is no requirement of Line PT only BUS PT is required
		General					The type tests specified in technical specifications should have been carried out within five years (unless otherwise explicitly stated) prior to the date of opening of technical bids and test reports are to be submitted along with the bids. If type tests carried out are not within the five years prior to the date of bidding, the bidder will arrange to carry out type tests specified, at his cost	Noted
		General					The maximum permissible temperature shall be 115 Deg C.	As per TS
		General					Separate PS class CT will not be provided. We will provide 3rd core as PS class CT. No separate CT will be offered.	For 33KV GIS One CT with 3 Cores Metering, Protection & Differential is accepted
		General					Offered panels are type tested for IP-4x as per IEC 62271-200. Offered panels are type tested without the use of any gaskets, hence, any gaskets are not necessary.	Noted
		CT			CT cores and CT Secondary		CT Secodary will be 1A instead of 5A. we have checked CT PS sizing calculation as per provided specification CT details and same is not possible to achieve with CT secondary 5A. Hence we are proposing to change the CT secondary 5Amp to 1Amp (for all CT core). With this we can achieve the desired values for class PS and Transformer differential core. Sizing calculation is attached for your reference kindly review and provide acceptance. Same is applicable for 33KV & 11KV both the boards. Refer the scope of supply.	Noted

		11KV Secondary Componants.			11KV Secondary componanats in the LV height.		11KV Secondary componanats on the LV height will be between 1700mm to 2700mm eight.the TVM meter will be mounted on the BUS PT /BRPT panels with respective panel nameplate and nomenclature.	Noted
		1			Document Referred for the Offering of INDOOR HT PANEL 11KV AND 33KV Panels.		only BOQ, E2, E3,E4-1,E4-2 and GTP & Layout are reffered for the offering of the 11KV & 33KV Panels , refer the atatched Scope of supply.	As per TS
		5.2.1			The spring charging time of the motor shall not exceed 10 sec in case of Vacuum Circuit Breaker.		Offered panel shall be spring charging time of less than 15 s in case of Vacuum Circuit Breaker.	Noted
		5.12			Wire size		Standard wire sizes should be offered mentioned in the scope of supply BOM. Please refer and confirm.	As per TS
		4.2.5			Max current Density of the busbar		same shall be as per type tested design /as per IEC of the offered NXAIR & NXAIR-H Panel.	Noted
		4.2.6			The maximum permissible temperature for bus bar shall be 90 deg. C at an ambient temperature not exceeding 40 deg. C , as per IS 3427 and IEC 694. However, the temperature rise for accessible enclosure and covers shall not exceed 30 K and in case, they are not required to be touched during normal operation, the limit shall be raised by 10 K.---- Temperature rise & Design Ambient Temperature		Temperature rise shall be as per Table 3 of IEC 62271-1 As specified in the data sheets, we have considered design ambient temperature as 40°C	Ambient Temp shall be as per TS
		5.1.1			Degree of protection and Gasket		Offered panels are type tested for IP-4x as per IEC 62271-200. Offered panels are type tested without the use of any gaskets, hence, any gaskets are not necessary.	As per Type Tested Design
		5.1.2			Sheet metal thickness is asked 3MM & 2mm		For 33kV NXAIR H: Frame - 2.0 mm, High Voltage Door - 2.0 mm, Low Voltage Door - 2.5 mm, Pressure Relief Flaps - 1.0 mm, Partitions between compartments - 2.0 mm, Shutters 1.0 mm, Partitions between panels - 2.0 mm, Bottom Plate - 2.0 mm, Rear Side Covers - 2.0 mm, End Covers - 2.0 mm. Structure shall be of bolted type. NXAir: Frame - 2.0 mm, High Voltage Door - 2.5 mm, Low Voltage Door - 2.0 mm, Pressure Relief Flaps - 1.0 mm, Partitions between compartments - 2.0 mm, Shutters - 1.0 mm, Partitions between panels - 2.0 mm, Bottom Plate - 2.0 mm, Rear Side Covers - 2.0 mm, End Covers - 2.0 mm. Structure shall be of bolted type. For Gland plate 3MM can be offered	As per Type Tested Design
		5.1.2			Dimensions of Panel:for 33KV Cubicle width maximum 1000mm Cubicle depth maximum 3200 mm Cubicle height maximum 2700 mm , Dimensions of Panel:for 11KV Cubicle width maximum 1000mm Cubicle depth maximum 2000 mm Cubicle height maximum 2700 mm		Offered panel shall be HxWxD: 2550x1000x3220--33KV Offered panel shall be HxWxD: 2500x 600/800x 1500 / 2000	Please mention voltage level for each. No deviation from specification

		2			Standards		Offered panels shall comply only to IEC standards as follows :- Panels - IEC 62271-200 VCB - IEC 62271-100 CT - IEC 61869-1/2 PT - IEC 61869-1/3 Other equipments shall comply to either IEC or national / internal standards. We shall not submit any standards' copies for review.	Noted
		3			Maximum Relative Humidity		Offered panels are suitable for indoor operation only as per the following conditions mentioned in IEC 62271-1: Average maximum relative humidity measured over 24 hours <=95% Average maximum relative humidity measured over 1 month <=90%	Noted
		3			Seismic Condition		Offered panel is not type tested for Seismic Condition. We can offer 0.5g withstand capability.	Noted
		4.3.8			Breaker operating sequence		Breaker operating sequence shall be O - 0.3 s - CO - 3 min. - CO	Noted
		5.1.4			Power Cable Termination		We have not considered power cables, cable glands, cable supports, cable lugs, termination kits, sealing material for cable entry, etc in our scope. We shall only provide cable termination facility in offered panels. Note: Offered panel is suitable for direct cable termination. So, cable support is not required.	As per TS
		5.1.5			Busbar shrouds, sleeves, insulation, barriers		For 11kV NXAir panels: Offered panels are type tested as per IEC 62271-200 without the use of any busbar shrouds, sleeves, insulation and phase barriers (in cable chamber). Hence, these are not necessary. For 33kV panels: Offered panels are type tested with silicon rubber shrouds only at main busbar joints and the same shall be provided. We shall provide Raychem sleeves on main busbars and polypropylene phase barriers (in cable chamber).	As per Type Tested Design
		5.1.8			Type test reports		We shall submit following type test reports for offered panels during detailed engineering. We have not considered any fresh type test in our scope: 1. Dry Power Frequency Withstand & Lightening Impulse Withstand 2. Short Time Withstand & Peak Withstand Current 3. Short Circuit Test Duties 4. Degree of Protection 5. Internal Arc Test 6. Temperature Rise Test Some of the type test reports are more then 5year old , since there is no design changes done peertaining to those type test . hence same need to be cosidered as per IEC.	Noted
		5.1.14			Contact multiplication		We shall provide Siemens make non latched type auxiliary contactors for contact multiplication.	Noted
		5.1.19			These sensors should be integrated with RTUs/ SCADA using wireless communication.		SCADA item, Relay software, Ethernet switch, LIU, Convertor, LAPTOP, FO cable will not be part of our supply.	As per TS

		5.2.1			Safety shutters		Offered panels have PM class partitions, hence, automatic safety shutters are metal.	Noted
		5.2.1			VCB positions		Offered panels have two distinct positions for VCBs: Service and Test. The Isolated position is when VCB is drawn out of panel. Service and Test positions are inside panel with VCB door closed.	Noted
		5.2.1			Removable doors		Offered panels have bolted type hinged doors with padlocking facility, request you to provide more clarity on removable type door.	Noted
		5.2.3			For each switchboard one no. 1250 A CB handling trolley shall be supplied.		For 33kV NXAIR H panels: Offered panels have floor mounted truck type VCBs. For 11KV Panel Breaker will be mounted on the Cassette.	Noted
		5.15			One bus bar earthing truck & one cable earthing truck shall be supplied per switchboard		We will offer one no of CET & one no of BET without PT & VCB or annunciation	As per TS
		5.16			Painting , in spec IS 631 demanded		Painting shall be as per attached bidder's standard painting procedure. For 33kV NXAIR H panels: RAL 7035/ RAL7032 For 11kV NXAIR panels: RAL 7035 / RAL 7032	Noted
		6			Name plate		Will be as per bidder's standard	Noted
		7			Inspection and Testing		Inspection and Testing shall be as per attached FAT. Only fully assembled switchboard shall be offered for inspection of routine tests. We shall submit test certificates of bought out items and no separate tests shall be conducted on these equipments at our works. Inspection shall be carried out as per our standard quality assurance plan(attached for your ref). Any type test is not considered in our scope. However, we shall submit type test reports for type tests carried out on similar product. Any stage inspection is not envisaged. We have not considered any tests at site.	Noted
		12			Packing		Packing procedure will be as per bidder's standard, Enclosed herewith for reference	Noted
		13			Quality Assurance		As per attached QAP.	As per TPCODL QAP
		5.2.2			Anti-Pumping Relay		Anti-pumping is an in-built feature of offered VCBs, hence separate relay is not offered.	Noted
		5.2.2			Closing Coil Supervision		This feature is not offered. However, anti-pumping is an in-built feature of our VCB.	Noted
		E-4-2 (4.10)			Trip-Circuit Supervision Relay , Electrically reset type high' speed relay for tripping. (The trip relay Shall be Supervised).		Master trip will be offered as VAJH13 , and for theTCS, Trip-circuit supervision is an in-built feature of numerical relay, hence separate relay is not offered. VAX31-for TCS can be offered as local reset??	2 TCS Relay is required .Functionality as per TS.
		E-4-2 (4.10)			MFM OR TVM ,,,DLMS compliant Digital energy meter (TVM) of class 0.2s with optical port and communication port for remote reading.		Non tariff based , non abt type TVM secure make premier 300 will be offered.	Noted
					Dummy Panels		We have not considered any dummy panels in our scope, Request you to inform exact details for dummy panels in case they are needed	Not required

					Breaker Contacts		We understand that these correspond to the tulip contacts of VCBs that engage with respective fixed contacts in panel bushings. These shall be silver plated as per bidder's standard panel design.	Noted
					Infrared Thermography Imager window		Offered panels are having normal viewing window in cable compartment for cable compartment observation. These are not IR windows.	Noted
					Drawings and Documents		Drawings and Documentation shall be as per attached Engineering Documentation.	Noted
					Spares		Request you to submit a list of mandatory spares. As of now, we have not considered any spares in our scope.	Need to share the list of spares and PU cost.
					Segregated compartments		For 33kV NXAIR panels: Offered panels shall have segregated compartments for VCB, main busbars, cable chamber, LV compartments and bus PT.	Noted
					Base Frames		Offered panels are suitable for mounting directly on leveled floor, hence, any base frames are not considered in our scope.	Noted
					Coil operating voltage		Permissible operating voltage for closing and tripping coils are as follows: Closing Coil - 85-110% Trip Coil - 70-110%	As per TS
					CT / PT burdens and PS class CT details		Exact suitable CT / PT burdens and PS class CT details shall be informed during detailed engineering subject to manufacturers' confirmation.	Noted
		5.5			Withdrawable PT		Bus PT shall be withdrawable type. In case of line PT:. For 33kV NXAIR H panels: Line PT shall be fixed type in the cable chamber with access from the rear of panel. Alternatively, rear draw-out PT in rear extension box can be offered if fixed PT is not acceptable.	As replied above no requirement of Line PT, only BUS-PT is required. These PT arrangement should be types tested product. Faulty unit replacement and out of service position to be presented with detailed documentation and outage free GIS oeprations
					PT secondary fuses		Offered panels have MCBs for PT secondaries instead of fuses, hence, any fuse / fuse failure relays are not necessary.	accepted with MCB. But these MCBs should have one auxiliary add on contacts for DC wiring to relay for digital annunciation
					Spare terminals		As far as possible, we shall try to give spare terminals depending upon space availability in LV chamber.	Noted

Additional Points Applicable for all Bidders

TMU shall be in the scope of supplier (Eberle/Hitachi)
For Relay 38DI 16DO (for Feeder Protection) 16DI / 10 DO for (Xmer Differential)
For Transformer Feeder there shall be a Main Differential relay and a Back Up Relay (OC/EF) All relays shall be as per TS
Apart from Protective Relay, There shall be no Microprocessor Based Controls.Only Hard Wired Logic with Contactors.
There shall be two Trip Coil with two dedicated TCS Relay
Master Trip shall be Electrically Resettable as well as Hand Resettable.
For Aux Relay Make shall be GE
Surge Arrestor is required on Incomers & Transformer 11 & 33KV Side

Sr. No.	Clause No.	Tender Clause Details	Details of deviation with justifications/ Clarifications	TPCPDL Reply
5.0 Award Decision				

1	5.0 Award Decision	TPCODL will award the contract to the successful bidder whose bid has been determined to be the lowest-evaluated responsive bid as per the Evaluation Criterion mentioned at Clause 2.0. The Cost for the said calculation shall be taken as the all-inclusive cost quoted by bidder in Annexure I (Price Schedule). The decision to place purchase order/LOI solely depends on TPCODL on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that TPCODL may deem relevant.	In case of issuance of Letter of Intent (LOI), the same shall be legally binding in nature as GCC clause 3.2 states that the date of issue/award of contract shall be the Effective Date of Contract or Contract Commencement date.If LOI is legally non-binding, we will not be able to book the order in our system. Hence, in the event of issuance of LOI, the commencement date shall be from the date of issuance of legally binding LOI.	Order should be booked after receipt of Purchase Order/Rate Contract.
7. Post Award Contract Administration				
1	8.0 SECURITY CUM PERFORMANCE DEPOSIT	Business Associate (BA) shall submit applicable Contract Performance Bank Guarantee (CPBG) as per GCC within 30 days of issuance of order. CPBG applicable shall be 10% of Purchase Order Value. Validity of CPBG shall be worked out as "Delivery date of Purchase Order+Warranty Period". Claim period shall be one additional month from the expiry date of CPBG in both cases.	SPBG and ABG shall be submitted in the mutually agreed format. Validity of these BGs shall be according to the guarantee period as agreed.	CPBG & ABG format will be as provided in tender document
2	7.1 Terms of Payment:	Supply of equipment 10% advance against CAT-A approval and submission of Advance BG of equivalent amount valid till the delivery of the equipment. 80% within 90 days against delivery of the complete equipment and submission of certified invoice. Balance 10% within 90 days against installation, testing and commissioning of the equipment. Installation, Testing Commission of the equipment 100% within 90 days against successful installation, testing and commissioning of the equipment alongwith statutory approval and service membership and submission of certified invoice. 7.2 Drawing Submission and Approval The relevant drawings and GTPs need to be submitted as per special condition of contract mentioned in point no. 7.1.	We propose the following payment terms: Supply & Services: a. 10% advance within 30 days against submission of equivalent Advance Bank Guarantee (ABG). b. 85% on pro-rata basis against dispatch of material at site (for supply)/ against monthly RA Bills (for services) within 30 days. c. 5% against successful commissioning & submission of equivalent Performance Bank Guarantee (PBG). In case of delay in commissioning beyond 30 days for reasons not attributable to the Contractor then necessary payment shall be released immediately within 15 days from the date of intimation.	Payment terms will remain same as per tender. In case of delay in handover of site for ITC work beyond 30 days then 10% retention against ITC will be released
GENERAL CONDITIONS OF CONTRACT FOR COMPOSITE WORK				
1	3.2 Contract Commencement Date	The date of issue/award of contract shall be the Effective Date of Contract or Contract Commencement date.	In case of issuance of Letter of Intent (LOI), the same shall be legally binding in nature as GCC clause 3.2 states that the date of issue/award of contract shall be the Effective Date of Contract or Contract Commencement date.If LOI is legally non-binding, we will not be able to book the order in our system. Hence, in the event of issuance of LOI, the commencement date shall be from the date of issuance of legally binding LOI.	Commencement date shall be from date of receipt of PO/RC.
2	4.2 Indemnity	Within 7 days of award of work, the Associates shall submit Indemnity Bond in the format as per Annexure-E to Order Issuing Authority. Contract having value more than Rs 2 Cr per Annum, Associates shall submit Indemnity Bond on Rs 100/- Non Judicial Stamp Paper in the format as per Annexure- E to Order Issuing Authority.	Format of Indmenity Bond shall be mutually agreed format.	Indemnity bond will not be applicable

3	4.8 Company's Right To Use Works	If Taking Over Certificate is delayed for any reason, for which TPCODL's decision shall be final and binding upon the Associate, the Company shall be entitled to use the works or portion thereof without affecting Associate's responsibility and liability to complete the balance works as per company's directives from time to time, though Associate shall be afforded reasonable opportunity by the company to enable Associates to complete all balance works required for issuance of 'Taking Over Certificate' by the company.	No consent or acceptance or issuance of any Certificates shall be unreasonably withheld by TPCODL for reasons not attributable to the Contractor. In a scenario where the consent/ acceptance/ approval/ issuance of any Certificate is not given within 30 days from the date of our intimation of readiness and/ or if TPCODL takes the equipment/ work/ system into commercial use before issuing the Certificate, the same shall deemed to have been occurred, issued and accepted by TPCODL. Transfer of risk shall occur upon such acceptance and the Warranty shall start from the same date, payments shall be released immediately.	This clause of TPCODL is about delay in issue of Taking Over Certificate by the Associate. Same will remain same as per tender document.
4	6.3.1 Statutory Deductions	TPCODL will deduct the amounts of TDS, TCS as per statutory requirement under the income tax act, the Goods and Services tax act, BOCW Act, or any other applicable tax act and certificates (wherever applicable) will be issued to associate accordingly.	If BOCW is applicable for this project, then the same will be reimbursed at actuals to the Contractor by TPCODL. Hence, the same has been excluded from our prices. If the same is to be considered by us then kindly let us know whether it shall be applicable on the complete order value i.e. Supply+ETC+Civil OR only on Services i.e. ETC+Civil. Please confirm.	This is as per statutory rule and same can be ascertained from Associate's own taxation dept.
5	6.5 Quantity Variation	Payment will be made on the basis of actual quantity of supplies/actual measurement of works accepted by TPCODL and not on the basis of contract quantity.	Request you to cap the quantity variation to ±10% of the Original Total Value of Contract.	Quantity variation to +10% of the Original Total Value of Contract will not be applicable for this work.
6	14.2 Guarantee Period	The Guarantee Period will be equipment/service/work specific and shall be as specified in the Standard Specifications of TPCODL for the equipment/material/service/work and where standard specifications are not part of contract documents or guarantee period is not specified in the standard specifications,, the guarantee period shall be as per the Special Terms and Conditions of the Contract. In case of no mention of the guarantee period in standard specifications or SCC, Guarantee Period will be 15 Months from the Date of Commissioning or 24 months from the date of delivery of final lot of supplies made, whichever is earlier.	As per seperate technical Specifications different Guarantee periods are mentioned. However as per GCC 14.2 Guarantee period will be 15 Months from the Date of Commissioning or 24 months from the date of delivery of final lot of supplies made, whichever is earlier.We understand for the complete project, Gurantee will be applicable as per GCC. Kindly confirm.	Guarantee clause will be as under: 11.0 GUARANTEE: 1. Bidder shall stand guarantee towards design, materials, workmanship & quality of process/ manufacturing of items under the contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of 60 months from the date of commissioning or 48 months from the date of last supplies made under the contract, whichever is earlier. 2. Bidder shall be liable to undertake to replace/rectify such defects at his own costs within mutually agreed timeframe and to the entire satisfaction of the TPCODL, failing which the TPCODL will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the TPCODL's own charges (@ 20% of

7	14.3 Failure in Guarantee Period (GP)	If the equipment and material supplied/service or work rendered under the contract fails to perform its due, rated & intended quality performance, during the Guarantee period, the associate is liable to undertake repair/rectify/replace the equipment and material supplied/ service or work rendered under the contract within time frame specified in the SCC or elsewhere in the contract documents at associate's cost to make the equipment and material supplied/service or work rendered under the contract of performing its due, rated and intended quality performance. If Associate fails to repair/rectify/replace the equipment or material supplied/service or work rendered under the contract, failed in Guarantee Period, TPCODL will be at liberty to get the same done at Associate's risks and costs and **recover all such expenses plus the TPCODL's own charges (@ 20% of expenses incurred), from the Associate or from the "Security cum Performance Deposit" as the case may be.**	In case of any defect the contractor shall with his best experience will rectify / replace / repair the equipment post investigating the default.	TPCODL clause mentions course of action in case Associate fails to meet his obligation during Guarantee period, Thus TPCODL clause will remain same as per tender.
8	14.6 Latent Defect	Hidden defects in manufacturing or design of the product supplied and which could not be identified by the tests conducted but later manifested during operation of the equipment are termed as latent defects. Associates shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Company.	In case of any defect the contractor shall with his best experience will rectify / replace / repair the equipment post investigating the default.	"Latent defect shall be part of the original warrantee period only."
9	15.0 LIQUIDATED DAMAGES	Liquidated damages @1% of the total executed contract value per week or part thereof, for the period of delay in integrated completion, subject to maximum 10% of the value of the contract shall become leviable without prejudice to other rights of the TPCODL. This amount shall be recoverable from any amount due or becoming due to the Business Associates under this or any other contract. In specific cases, TPCODL reserves the right to apply LD only on the unexecuted portion of the supply and works for standalone use, provided full quantity is executed within a maximum 30% additional time. Deduction of LD shall be on landed cost i.e contract value inclusive of taxes and in pursuant statutory compliance GST would be applicable at the stipulated rate and the same shall be borne by Business Associate. In case of LD deduction, a GST invoice shall be issued by TPCODL as a proof of deduction/ recovery.	The said clause is acceptable to us. However, in the event of delay from Contractor, request TPCODL to first exercise Liquidated Damages clause. In case, if there is further delay resulting in breach of maximum LD cap then Employer can exercise any other right as specified in this contact. Further, for delays not attributable to the Contractor, along with time extension, he shall be entitled for Project Management Cost & Price Escalation, wherever necessary.	Noted. Not Applicable
10	18.0 CONFIDENTIALITY	Associate and its employees or representatives thereof shall strictly maintain the confidentiality of various information they come across while executing the contract as detailed below.	Shall be applicable to both the parties vice versa.	Noted

11	21.1 Liability	Except for any specific liability which may be identified in the Contract and which may be payable hereunder, Associate shall not be liable for any special, incidental, indirect, or consequential Damages or any loss of business Contracts, revenues or other financial loss (or equivalents thereof no matter how claimed, computed or characterized) arising out of or in connection with the Performance of the Work or supply of Goods unless caused by Associate's negligence, willful misconduct or breach of contract. TPCODL shall have no liability or any special, incidental, indirect or consequential Damages for any loss of Business Contracts, revenues or other financial loss arising out of this Contract.	We propose this clause as below: Either Party shall have no liability or any special, incidental, indirect or consequential Damages to the other Party for any loss of Business Contracts, revenues or other financial loss arising out of this Contract.	This clause will remain same as per tender document.
12	22.0 FORCE MAJEURE	With reference to the list of Force Majeure events defined in GCC	Request you to include Epidemic/ Pandemic to the list of existing Force Majeure events.	It will be reviewed in case such situation arises.
13	24.3 Termination for Convenience of TPCODL	TPCODL at its sole discretion may terminate the contract by giving 30 days prior notice in writing or through email to the Associate. TPCODL shall pay the Associate for all the supplies/ services rendered till the actual date of contract termination against submission of invoice by the Associate to that effect.	In addition to the payment towards supplies/ services renedered till the actual date of contract termination, TPCODL shall be liable to pay for work in progress, inventory of the said scope of work for which the manufacturing clearances were already issued by TPCODL.	This clause will remain same as per tender document.
14	6.3.1 Statutory Deductions	For consumption of TPCODL's Water and Electricity by Associate for execution of Contract, Associate shall pay 0.5% & 1.0% respectively of contract value and it shall be deducted from the running bills. The Engineer-in-Charge as stated in the Order shall be responsible for certification of the work executed and the bills. Bills (including original) shall be submitted in triplicate at Bill Inward Receipt Desk (BIRD) located at IDCO Towers, Janpath, Bhubaneswar.	We request TPCODL to provide Water and Electricity for the Project and include this in TPCODL's scope.	Water and Electricity for the Project will be in Associate's scope
15	6.4 Guidelines for Raising Running/Final Bills	All Bills shall be processed only when all bank Guarantees are in place and before payments of Final Bill Associate have to furnish NDC.	We understand NDC stands for 'No Demand Certificate'. Please confirm.	Correct
Additional Queries				
1	Form V - Labour Licence	Query	Request TPCODL to issue Form V in the name of the sub-contractor as identified by the Contractor for ETC since the relevant scope of work shall be executed by the said sub-contractor.	TPCODL will issue Form V to its main Associate only.
2	Storage Cost	Tender is silent	We propose the following clause: If dispatch, delivery or Factory Acceptance Test (FAT) is delayed due to reasons attributable to the Customer by more than one month after notice was provided by the Contractor for dispatch, delivery or FAT, TPCODL may be charged storage costs thereafter at the rate of Rs. 15 per sq. ft. per day. If material is not picked up by TPCODL then thereafter, Contract shall be deemed to be terminated at the option of Contractor. Contractor shall be free to dispose of the supply and recover damages from TPCODL.	Please refer clause no 23 (Suspension of Contract) and clause 24 (Termination of Contracts) of GCC for clarity in this regards.
3	Interest Clause	Tender is silent	We propose the following clause: All invoices due for payment shall be settled immediately, without any cash discount or other deduction. If TPCODL is in default with respect to the agreed terms of payment, it shall be liable, without reminder, to pay default interest, from the due date of payment at a rate of 13% per annum.	Interest on delayed payment, if any, will not be applicable.
4	Annexures	Annexures for Bank Guarantees and Bonds	Annexures and formats shall be submitted in the mutually agreed formats.	All such format already provided in GCC
5	Divisible Contract	Query	In the event of award of contract, request you to: 1. Issue 2 separate Purchase Orders for the activites under defined Scope of Work i.e. a) Supply & b) Installation, Testing & Commissioning OR 2. Issue separate Price Schedules and detailed breakup for the above mentioned activities under one Purchase Order.	Single order will have line items as per Annexure I of the tender, unless same is changed due to business requirement.