

**NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE**

NEA's Response to Queries

	Clause No	Description	Queries	NEA Response
S.N.	2	FRTU Architecture :		
1		<p>The CPM shall effectively communicate with main SCADA as well as its peer FRTUs for fault detection and control operations over the same structure as the main SCADA.</p> <p>A control disable switch shall be provided with each module with its status indication:</p>	<p>For Peer to Peer Communication the FRTUs should be connected over a reliable FO network over a LAN. Kindly confirm that the communication link between FRTUs will be FO.</p> <p>The Fault detection by each FRTU will be based on the FPI (Fault Passage Indicator) status monitored at each location. Please confirm if any additional features are envisaged.</p> <p>Instead of a Individual Control Disable Switch, a Local/Remote switch can be provided in the FRTU to disable all Outputs.</p>	<p>The communication will be FO or RF or GSM network. So the FRTU shall be compatible for use with both mode of communication. FPI shall be as per the specification.</p> <p>The location and number of the control switch as required shall be provided for the trouble free operation and will be decided during detail engineering.</p>
	3	Functions		
2	ii	Detection of amperometric faults adjustable for each feeder	FPI Status will be monitored for such faults. The FPI reset command will also be available. Please Clarify, FPI is external or FRTU is required to have CT/PT inputs directly to detect faults.	FPI will be preferrably external mounted and shall be as per specification.
3	iii	Load current measurement on the line fitted with a fault detector		FPI reset command should be provided for local and remote operation.

4	vi	Energy supply and storage with 9-hour autonomy in the event of mains failure	This is not required separately for FRTU, if the RMU is supplied with a Battery and Battery Charger. Please confirm?	Confirm
5	vii	It shall be possible to view LBS/breaker status from the front mimic of FRTU .	Kindly confirm if these indications will be provided (wired) in RMU independent of FRTU or these are required to be driven from FRTU. If a MIMIC is required in FRTU, an LCD display will have to be considered.	MIMIC is required in the FRTU.
6	xi	The FRTU shall have remote or local control mode switch on its front panel.	This function is generally available on the RMU. Not required on FRTU separately.	Confirm but if required during detail engineering shall be provided at no additional cost to the employer.
7		In remote control mode	This feature is provided on RMU	Confirm
8		In local mode	This feature is provided on RMU	Confirm
9		DC Power Supply	Battery with power supply will be provided within RMU	Confirm
10	4.2	Measurement Archiving : The minimum storage capacity shall be 20000 measurements.	The data is archived on a Flash drive. The Sizing of the drive will be finalized during engineering stage.	Confirm
11	7.1	Diagnosis : Protocol analyser: This analyser is used to observe the frames exchanged with the remote control centre to facilitate maintenance operations.	Is this to be provided separately.	If not included shall be provided seperately.
12	9	Switch Connection	Please clarify.	As per specification

13	10	List of Information to be provided	<p>> Pt 2,3 and 4 will be achieved by reading values from MFM</p> <p>> Pt 5, 6 and 7 are related to the Battery Charger which is in ABB's Scope. All these faults are required inform of Digital Inputs from the Charger.</p> <p>> UPS fault details to be confirmed by ABB for I/O calculations</p>	All the signals and information listed is to be provided.
14	11	FRTU should support following future provisions	FRTU supports the PLC programming/configuration. However a one-time license is required for configuring this. The same should be procured whenever required.	As per specification
15		RMU	Please confirm if supply of whole of SCADA system to be made by the contractor or to be connected to the SCADA system of NEA.	This is a turnkey contract all works required for succesful completion, commissioning and operation shall be responsibility of the contractor.
16	3 -Outdoor	The equipment shall be suitable for mounting on galvanised steel supporting stand and housed inside a naturally ventillated all weather metal kiosk	The unit to be suitable for Outdoor (Not Kiosks) applications and can be used either as a free standing unit or installed in compact mini substation .The product can accomdate further extension of breakers and isolators depending on application.	As per the specification

17		Hermetically sealed metallic epoxy /stainless steel enclosure for outdoor RMU application	Stainless steel is the most preferred material for Gas Insulated System because of its high resistance to corrosive and humid atmosphere. In case of fault in cable box, it is easier to change a bushing. In case of epoxy resin tank, the entire unit has to be scrapped. This is against the philosophy of interchangeability and flexibility at site.	Amendment Issued
18	5.2	Units should be constructed from 3mm thick hot rolled steel sheets however SF6 enclosure are stainless	For the offered RMU, we provide 3mm stainless steel tank containing all the live parts and switching functions which is Robotically welded with degree of Protection IP67.This ensures a high level of reliability as well as personal safety and a virtually maintenance -free system . Outer enclosure 2 mm Galvatite sheet (which is more superior to CRACA sheets) & Cable box covers with 2mm thick with degree of protection IP54 for Outdoor application.	As per the specification
19	6.3	Three Numbers of continuous busbars made up of EC grade tinned copper of rating 630A shall be provided	All bus bars are encapsulated in SF6 environment & Type tested as per IEC, hence tin plating is not envisaged.	Confirm
20	6.11.12	Cable testing possible without disconnection of cables	Offered RMU is with cable testing facility from Cable Bushings without disconnecting the cables & with opening of Cable Box cover which is interlocked with Earth Switch. Cable box cover will open only in Earth position.	Confirm

21	6.12	The auxilairy transformer will have sufficient VA capacity	Please furnish VA Capacity of Auxiliary transformer. In our opinion 500VA capacity is sufficient	Will be decided during detail engineering after due calculation
22	6.13.5	An automatic battery checking device shall be provided to check battery's health and initiate a battery failed alarm signal in case of battery deterioration is detected	Please clarify	The specified features as per technical specification shall be provided
23	6.14.1	All the functions within the RMU i.e. isolators/breakers should be fitted with motor mechanism and closing coil making it suitable to make it ON from remote	For the offered design of RMU, closing coil is not envisaged	The specified features as per technical specification shall be provided
24	7.2.7	Nominal operating gas pressure: 1.4 Bar abs 20Deg.C.	Nominal operating gas pressure: 0.05 Bar G. 20Deg.C.	During DDE
25	7.5	Mechanism	The Circuit Breaker Mechanism is assembled with stainless steel parts & not from MS as MS parts will get rusty over a period of time & fails to operate on fault thereby bypassing the protection system leading to the failure.	Confirm
26		Mechanism has fuse tripping device	Not applicable since Protection circuit is with self-powered Relay in conjunction with Protection CT`s.	Confirm
27	6.13.4 d	Battery shall have minimum life of five years at 25Deg.C	Battery shall have minimum life of 2 years at 25 Deg.C as per recommendations of manufacturer of battery	Please follow the technical specification
For HT 11 kV Cables				

28	For chapter 2 system parameter	system parameter of rated short circuit current is 25 kA for 3 sec.	For the required system parameter of rated short circuit current of 25 kA for 3 sec, kindly clarify whether it is applicable for all three cores combined or for each individual cores of the HT cable	As per IEC standard
29	Technical specification : CL No. 1.15 Metallic screen	The required rated short circuit current of 25 kV for 3 sec(i.e. 8.33 kA for 3 sec for each individual core)	Please note the short circuit rating of 150 Sq. mm shall be 8.14 kA for 3 Sec. Technically this design of cable is not Feasible for manufacturing.	As per IEC standard
30	Technical specification : CL No. 1.15 Metallic screen	The required rated short circuit current of 25 kV for 3 sec(i.e. 8.33 kA for 3 sec for each individual core)	Please note the we shall meet the required short circuit current for metallic screen only with the help of the combination of copper wires and copper tape, NO LEAD SHEATH SHALL BE PROVIDED.	As per technical specification
31	Technical specification: CL.NO. 1.2	_	Kindly clarify whether the required insulation material is XLPE or TR- XLPE (Three Retardant XLPE)	As per technical specification
32	Technical specification: CL.NO. 1.2	_	Kindly note that each cores shall not have Polyethylene Sheath, a common inner covering (sheath) of PVC type - ST2 shall be provided as per applicable IEC/IS standard	As per IEC standard
	For HV ABC Cable:			
33	Technical specification :Cl. NO. 3.0 Phase Identification	Ribs shall be in rounded form	It shall be in triangular form as the constructional diagram enclosed for your ready reference.	As per technical specification
	For LT Power Cable			
34	Technical specification : LT Power Cable	_	UV Testing shall be applicable on the outer sheath only. It shall not be applicable for insulation, as only outer sheath of the cable shall be in direct exposure of the sun light	As per technical specification

35	Technical specification : LT Power Cable	–	Kindly note that the conductor for the LT power cables shall be stranded compacted circular (for 1 core cable) and stranded compacted sector shaped (for multi core cable). Kindly confirm	As per technical specification
36	Technical specification : LT Power Cable clause 5	–	Kindly note that XLPE insulation shall not be resistant to FIRE & OZON as XLPE doesnot adheres those properties.	As per technical specification
37	Technical specification : LT Power Cable Clause 6	–	Kindly note core identification shall be provided as per applicable IEC/IS standard.	Confirm
38	Technical specification : LT Power cable Clause 9	–	Kindly confirm whether the armouring for the LT XLPE cable are wire/strip or only round wire	Shall be decided during detail design engineering
	For HV ABC cable			
39	Technical specification : HT AB cable clause 6.5 table 1	–	Kindly note, the earth fault required for metallic screen i.e. 2.14 kA for 1 sec can only be meet by combination of copper tape in open helix formtion.	As per IEC standard
	RMU queries			
40	Technical specification : scope clause No. 1	The unit shall be of 11 kV metal enclosed, panel type , extensible and suitable for indoor and outdoor application	RMU shall be outdoor type as per BOQ. Please clarify of there is any requirement of RMU for indoor application.	Shall be outdoor type

41	Technical specification: Application - outdoor clause No. 3	Hermetically sealed metallic epoxy/ stainless steel enclosure for outdoor RMU application	Metallized epoxy enclosure for tank is not recommended for RMU. Please remove this point. Tank is heart of RMU wherein all LBS and VCB shall be enclosed inside the tank. Tank must be made of non ferrite and non magnetic stainless steel and must be robotically welded sealed for life. We are provided 2.5 thick SS tank. Fabricated part (support structure and outer enclosure shall be made of 2 mm thick CRCA sheet)	Amendment Issued
42	Technical specification: Application - outdoor clause No. 3	The manufacturers shall confirm the normal current ratings mentioned in technical data sheet (TDS) at 50 degreee ambient without derating	RMU is rated for 630 A @ 40 deg C ambient. Current deration shall be applicable @50deg C derated current shall be 571A. Please confirm.	As per specification
43	Technical specification: SF6 gas interrupters clause No 4.2	SF6 gas interrupters	We are using Vaccum interrupters. Hence this clause shall not be applicable for interrupters for breaker.	Confirm
44	Technical specification: SF6 gas interrupters clause No 4.2	The vendor shall state in the proposal the nominal SF6 gas filling pressure and nominal fill temperature	1.4 bar@20deg C	Confirm
45	Technical specification : SF6 gas annual loss clause No. 4.2.1	The switchgear shall not remain energized with load connected if there is no SF6 gas inside the tank.	It is recommended not to perform make & break operation in RMU in case of gas loss. It is recommended to cut the supply from upstream breaker	Confirm

46	Technical specification : SF6 gas pressure gauge/no-return valve & low gas switch clause No. 4.2.2	A separate low pressure SF6 gas switch shall be provided for low pressure alarm. The low pressure switch is to be set to operate at pressure which will indicate loss of SF6 within switchgear and will not generate false alarms as the SF6 gas pressure drops due to the ambient temperature drop or change	There shall be NO contact in manometer which shall be wired to terminal block. This can be further wired to SCADA panel for alarm. Note that manometer is temperature compensated which will indicate the pressure independent of ambient temperature . In case of gas loss (below 1.2 bar) pressure will be indicated in red zone.	Confirm
47	Technical specification :General structural and mechanical construction clause No. 5.2	The overall design of the indoor switchgear should be such that front access only is required	RMU required is of outdoor type as per BOQ. Please confirm whether outdoor RMU is also with front access only or side & rear access is allowed for outdoor RMU	As per specification
48	Technical specification: General structural and mechanical construction clause No. 5.2	The units should be constructed from 3 mm thick hot rolled steel sheets, however SF6 enclosures are stainless	Fabricated part shall be made of 2 mm thick CRCA sheet only. Please confirm	As per specification
49	Technical specification : General structural and mechanical construction clause No. 5.2	The design of the unit should be such that no permanent or harmful distortion occurs either when being lifted by eyebolts or when moved into position by rollers	It is recommended to lift the RMU with lifting hooks only. It is not recommended to move the position of RMU by roller, If surface is not smooth	Confirm

50	Technical specification : General structural and mechanical construction clause No. 5.2	For out door RMUs weather proofing process shall be carried out. Sheet metal must be grit Blazed / thermally sprayed and polyurethane painted with about 70 micro thicknesses, to achieve outdoor worthiness and corrosion proofness	The fabricated parts are pretreated using 7 tank process and then coated by layer of zinc phosphate. The parts are then painted using polyester power coating paint with appropriate thickness of 60-80 microns. This coating is suitable for corrosivity class fo C1-C2 for outdoor application. Grit/shot blasting of components shall not be done. Plees clarify the corrosion class	As per specification
51	Technical specification : General structural and mechanical construction clause No. 5.2	RMU enclosure must be shielded against solar irradiation and tested for an ambient of 50 degree centigrade without derating of the equipment	RMU is rated for 630A @40 deg C amnient as per IEC 62271-1. Current deration shall be applicable @50 degC derated current shall be 571A. Please confirm	As per specification
52	Technical specification : General technical requirements clause No. 6.1	It should be maintenance free, having stainless steel robotically welded enclosure for Indoor Rmu & hermetically sealed metallized epoxy enclosure / stainless stell enclosure for outdoor RMU application	Metallized epoxy enclosure for tank is not recommended for RMU please remove this point. Tank is heart of RMU wherein all LBS and VCB shall be enclosed inside the tank must of non ferrite and non magnetic stainless stell and must be robotically welded sealed for life. We are provided 2.5 thick SS tank. Fabricated part (support structure nd outer enclosure shall be made of 2 mm thick CRCA sheet)	Refer Amendment
53	Technical specification : General technical requirements clause No. 6.1	Each RMU shall include its own power supply unit (including auxiliary power transformer, maintenance, free batteries, and batter charge), which shall provide a stable power source for the RMU will also supply 24V DC 500VA for FRTU and other purposes.	Please confirm whether any metering is required or not. If required, in which function it is required.	Metering where applicable is required. Metering is for energy, current and voltage measurement.

54	Technical specification : General technical requirements clause No. 6.1	Monitor the local /remote position of Rmu motorized (in case if failure of motor) manuall- operated switch that can be used toenable and disable remote monitoring	Local/remote poistion shall be the part of FRTU only (strongly recommended). It shall not be provided in RMU. It will avoid any chance of disabling FTRU by putting RMU in local mode.	Confirm
55	Technical specification : General technical requirements clause No. 6.2	Necessary current senors / transformers for protection and metering (wherever required).	Nowehare in spec, it is mentioned to provde metering mouldle. Please re-confirm whether any metering is required or not. If required, in which fuction it is required.	Refer answer of query no. 26
56	Technical specification : General technical requirements clause No. 6.2	A PT panel including aux power transformer for meadurement of system voltage and for charging the batteries or Aux supply from NEA line	Please confirm whether 230kV AC aux supply shall be provided be NEA or aux power to be derived form RMU through aux transformer?	Auxillary transformer shall be used for power supply
57	Technical specification : Busbars clause No. 6.3	The three numbers of continuos busbaars made up of EC grade tinned copper of rating current 630A shall be provided	Bus bar shall be made of bare copper. Note that bus bars are enclosed inside the SF6 insulated sealed tanic. Tinned copper bus bar is not required. We request NEA to accept the same. Bus bar is rated for 630A@40 deg C ambient. Above 40 deg. Current deration shall be applicable.	Confirm for busbar material. Derating is not allowed. Please provide as per specification.
58	Technical spefication : Load break switch clause NO 6.4	The operating mechanism shall be spring assisted mechanism wih operating handle for On/OFF	Operating mechanism of LBS shall be snap action mechanism for LBS	As per specification
59	Technical spefication : Load break switch clause NO 6.4	The rated current isolator shall be 630A continuous at Maximum ambient temperatures. No derating shall be allowed	We understand that LBS shall be motor operated which means it is ready for remote operation. If manually operated LBS required with provision of motorization in future or is the requirement of motorized LBS? Please clarify	LBS shall be used for remote operation. Motorized LBS is required.

60	Technical specification : Load break switch clause NO 6.4	The earthing switch shall be operable through the main circuit mechanism and manual closing shall be driven by a fastacting mechanism, independent of operator action	RMU shall be rated for 630A @40 deg C ambient. Above 40 deg. Current deration shall be applicable.	Derating is not allowed.
61	Technical specification : Earthing of isolators and distribution transformer breakers (Earth switch) clasuse No. 6.5	Minimum number of operation at rated current (as per IEC 62271-100,102): Mechanical endurance M2 (2000), Electrical endurance-class E3	Please clarify this term "The earthing switch shall be operable through the main circuit mechanism"	Please provide as per specification
62	Technical specification : Circuit breaker (SF6 or Vaccum) Clasue No. 6.6	Minimum number of operations at rated current (as per IEC 62271-100,102) : Mechanical endurance M2 (2000) , electrical endurance- class E3	We confirm the criteria of mechanical endurance of 2000 operation which is termed as M1 class instead of M2 class. RMU conforms to electrical endurance class-E2 . Please clarity the requirement of E-3 class endurance.	Please follow relevant IEC standard
63	Technical specification : Circuit breaker (SF6 or Vaccum) Clasue No. 6.6	All these relays shall be of 3 sec IDMT characteristics, the O/C elements current setting variable from 10% to 200% of CT secondary ratings, and the E/F elements having current setting variable form 10 to 40 % . The protection curves and all other settings shall be adjustable from touch panel	O/C setting from 20% setting from 200% and E/F from 10% to 40% . Please confirm the transformer rating.	Confirmed for setting of O/C and E/F.
64	Technical specification : Bushing clause No, 6.7	It is preferable to have bushings accessible from the rear side of the RMU	Bushing shall be accessible form front only. Please ref clause no. 6.8 (front / rear/ side access is acceptable)	As per specification

65	Technical specification : Bushing clause No, 6.7	The cable boxes at each of the two ring switches suitable HV cables of size 3C*300 sq.mm and circuit breaker cable suitable up to 3C* 400 sq. mm.	Please clarify whether it is single run cable or double run cable. CB module is suitable for 3C*400sq.mm for single run cable only. In case of double run cable in breaker module, Please clarify why double cable is required in breaker module. Generally double cable is required in LBS module for loop-in loop-out double run cable up to 400 sq. m can be provided in C module	Double cable may be required in select locations. This shall be decided during detail design engineering.
66	Technical specification : Extensible clause No. 6.10	Each combination of RMU shall have the provision for extension by load break isolators/ breakers in future, with suitable trenching chamber, accessories and necessary busbars. Extensible isolators and circuit breakers shall be individually housed in separate SF6 gas enclosures. Multiple devices inside single gas tank/ enclosure will not be acceptable.	Base RMU shall be extensible type where all LBS and VCB shall be enclosed in single tank and shall be suitable for coupling with other extensible unit . Coupling LBS and VCB shall be housed in single tank. Please confirm our understanding.	Confirm
67	Technical specification : The characteristics of the FP is shall include clause No. 6.11.4	Phase fault thresholds configurable from at least 100 to 800 A	Operating current short circuit : 200/ 300/ 400/ 500/ 600/ 800/ 1000 A	Confirm
68	Technical specification : The characteristics of the FP is shall include clause No. 6.11.4	Earth fault thresholds configurable from at least 20 to 200 A	Operating current of earth fault 10/20/30/40/50/60/80/100A	As per technical specification

69	Technical specification: The characteristics of the FPIs shall include cause No.6.11.4	Fault current duration range configurable from at least 40 ms to 100 ms in 20 ms steps and further 100 ms to 300 ms in 50 ms steps	Available FPR response delay time is 40/60/80/160/200/300/500 ms. Please confirm the make and model no. of FPI having mentioned setting in specification.	Confirm
70	Technical specification : FPI clause No. 6.11.8	The conventional practice is to have N numbers FPI where N is number of LBS in a particular configuration of RMU	Please confirm whether FPI to be provided in each LBS or no. of LBS-1	As per specification
71	Technical specification: FPI clause No. 6.11.9	Units fully SCADA compatible. Retrofitting at site possible at a later date. Line switches (Load break switches) as well as T-OFF circuit breaker can be operated by remote	Please clarify the SCADA Compatible. RMU to be provided with manual operation with future provision of motorization or RMU to be provided with motor assembled in factory.	RMU is to be provided with motor assembled in factory.
72	Technical Specification : FPI clause No. 6.11.14	All live parts should be inside a hermetically sealed metalized Epoxy enclosure / stainless steel enclosure for outdoor type RMU & 3 mm stainless steel robotically welded enclosure for indoor RMU	Tank thickness shall be 2.5 mm and we confirm that same is suitable for required volume of gas and we have type tested RMUs with this tank thickness. We request NEA to accept the same.	As per specification
73	Technical specification : Auxiliary transformer clause No 6.12	FRTU (supplied by other with rating of 230V AC, 1 A)	Please clarify whether FRTU shall be the part of RMU or there is separate requirement of RMU & FRTU wherein RMU & FRTU shall be supplied by different vendors	Part of RMU and if separately provided it shall be at no additional cost to employer
74	Technical specification : Auxiliary transformer clause No 6.12	Receptacle (230V AC , 5A for powering local test equipment's)	We understand that it is not the part of RMU. Please confirm our understanding.	It is considered as part of RMU

75	Technical specification : Power supply clause No. 6.13.3	The auxiliary power transformer's inputs shall be equipped with surge protection device in accordance with IEC 62305	Surge protection devices is not feasible to install in RMU. Please delete this line	As per specification
76	Technical specification : Battery clause No. 6.13.3	d. 5 year designed life.	Battery manufactures offers 6 month warranty however for overall life expectancy, battery manual shall be shared. (not confirming exclusively for 5 years designed life)	As per specification
77	Technical specification : Battery clause No. 6.13.3	Should have capacity for 5 switching operations and 48 hours of operation RTU/ Modem / communication for SCADA in the event of supply failure	Suitable for either 5 switching operation or 2 hrs back up.	As per specification
78	Technical specification : Other accessories (required with RMU): clause No. 6.14.2	Shunt trip coil (coil voltage shall be indicated later on)	Please confirm the shunt trip coil voltage	Will be decided during DDE
79	Technical specification :SCADA connectivity clause No. 6.15	All the I/O signals need to be brought to the terminal strip on a din rail, also the din rail should have space to mount the MFT's provided by SIA.	Please clarify " MFT provided by SIA " what is MFT? What is its size?	Multi Function Transducer
80	Technical specification: SCADA connectivity clause No. 6.15.1	The CT/PT provide metering grade core for connecting MFT provided with FRTU	Please clarify the requirement. Is metering required ? Do we need to provide metering PTs & CTs in RMU? If required, in which function metering to be provided. Do we need to consider meter in RMU scope or meters shall be provided by NEA?	Refer above

81	Technical specification : technical data clause 7.1	Impulse voltage withstand-95 kVp	Impulse voltage withstand of NEA specs for 11 kV VCB panels calls for 75kVp only. Why for RMU 95 kVp is insisted?	Change to 75 KVp
82	Technical specification: Mechanism clause No, 7.5	The mechanism provide independent manual operation fo closing and opening of the switch independent closing of the earthing switch and dependent operating of the earthing switch	closing and opening of eathing switch shall be independent manual. (for both LBS and Breaker Function)	As per specification
83	Technical specification: Mechanism clause No, 7.5	The mechanism has fuse-tripping device	Please clarify this terminology.	As per specification
FRTU Queries				
84	Technical specification : FRTU architecture clause No. 2	The central processing module shall be suitable to handle all type of communication protocols.	Apart from 60870-5-101/104 is there any other communication protocol needed. Please clarify for per-peer FRTU & FRTUs to main SCADA communication network establishment shall be in customer's scope	It is in the scope of contrator.
85	Technical specification : FRTU architecture clause No. 2	Control disable switch provide with each module with its status indication so that when the switch is put off the control outputs shall be disable.	Please clarify for control disable switch, it is local/remote switch or some thing else?	Local/remote switch
86	Technical specification : Function clause No.3	Detection of amperometric faults, adjustable for each feeder	Please clarify this point.	Please follow specification and relevant international standard

87	Technical specification : Function clause No.3	Load current measurement on the line fitted with a fault detector	Please clarify who will be responsible for supply to these sensors and where will it be mounted. What will be the protocol of these sensors. Supply of requirement sensors are not in FRTU scope of supply or these sensors are mounted in FRTU, Please confirm	Sensor are to be mounted in FRTU and is in responsibility of the contractor.
88	Technical specification : Function clause No.3	It shall be possible to issue control command form the front panel of the FRTU with scurity button	Hardware push button with key shall be provided on the front mimin to facilate the same . Please confirm	Confirm.
89	Technical specification : Function clause No.3	DC power supply	DC power supply of FRTU shall be included in RMU as per clause no. 6.12 & 6.13	Confirm
90	Technical specification : Measurement archiving clause No. 4.2	Each measurment can be configured to be archived if required. A measurment declared archived can be stored.	Each value data file shall be created separated and stored.	Confirm
91	Technical Specification : communication protocal clause No. 5.1	IEC 60870-5-101/104 protocol to transfer information to control SCADA.	Please clarify which communication protocol is required. Since both use different communication prots like IEC 101 use RS132/RS485 and IEC 104 use Ethernet port . Same both use differnet modem for remote communications.	IEC 104
Civil Work Queries				
92	General	Road Restoration	Please confirm that statutory charges towards road cutting & shall be reimbursed to bidders against production of documentary evidence.	Confirm
93	General	ROW issue	ROW acquisition and cost of ROW for substation and line works is in the scope of NEA . Please confirm	Confirm

94	General	Local items	Kindly confirm the tax process, beebfits & liability which we have when we will procure the supply items & civil items from Nepal	Bidder shall bear all taxes like VAT,etc as per rules and regulation of government of Nepal.
95	Technical specification: Event Transmission clause No. 5.2	It shall be possible to configure each time-stamped event to corrsponds to the appearance or disappearance of an alarming event or an alarming closure failure	we can confirm this event for tripping facility interlock enable/ disable but for SCADA alarm display, customer need to change in their SCADA alarm enable/disable	As per specification
96	Technical specification: communication prots clause No. 5.2a	One RS232 console port and for connecting external modem.	Kindly clarify what this port shall be use for ? What console are we referring to here? For understanding, for FRTU & modem , ethernet port are used for communication through IEC 104.Also modem is having RS232 port.	Shall be provided if required
97	Technical specification : Local communnication networks clause No. 6	The control unit shall have a Modbus RS485 port for mommunication with the station equipment /multi function transduces.	Please clarify whether all the IEDs are with modubus protocol only or is there any other communication protocol	Please follow IEC 104
98	Technical specification: disgnosis clause No. 7.1	Measuremnet and status display : this page is used to view in real time the TSS, TSD and TM status for each switch controlled by FRTU	Please clarify what is TSS, TSD & TM?	Please refer to related international standard.
99	Technical specification: disgnosis clause No. 7.1	Protocol analyzer:	This is a licensed third party software. Need third party tools for protocol analyzer . FRTU don't have in built facility of this . We can show data log on RFTU web page. Same will be in customer scope	Provide as per specification.
100	Technical specification: switch connection clause No. 7.5	switch connection	Please clarify in which device , need fail safe protection.	During Detail Design Engineering

101	Technical specification	Self healing grid logic	Kindly provide us your envisaged detailed logic for this requirement	During Detail Design Engineering
LT feeder Pillar Queries				
102	Technical specification: scope clause 1.1	LT distribution pillars made out of either mild steel enclosure with SMC door or complete enclosure of thermosetting plastic	We recommend for use of (10SWG) CRCA/MS doors powdered coated with enamel paint after 9 tank treatment which are more durable & have longer life as compared with SMC doors and continuously is use power grid & various power utilities boards as a standard practice & successfully working for a long time.	Confirm
103	Technical specification : standards clause 3.0	As per TS clause 3.0 standards: All compenents used in the manufacture of the pillars shall confirm to the relevant IEC or equivalent international standard.	All components used in the manufacture of the pillars shall be confirm to IS/IEC as per their manufacturing standard	Confirmed but equivalence has to be proved.
104	Technical specification : Air circuit breaker clause 5.2 Sr. No2	Air circuit breaker Sr. No. 2 Rated frequency (5Hz)	Rated frquency (50Hz)	Confirm
Queries				NEA Response
105	Where is the 9kV arc suppression coil for use? Where is it located?			As per design of the manufacturer
106	In the tender document Volume II , Page 13, 5.2 Meteorological data, d) wind speed zone 4, please kindly clarify the exact wind speed by how many meters per second?			47.7 m/s
107	In the tender document Volume III, the Item 11KV 3 phases dropout fuse set with all accessories suitable for DT is not quite clear for the technical specification. Please kindly supply technical specification or explain for this item. Is it used for transformer?			It is attached as Annex to this clarification. It will be used for transformers or line as necessary.

108	In the tender document Volume II , page 105 12.7 clause and page 110 10.7 clause, the bidder should furnish the sample, we would like your kind office to confirm whether it is mandatory during the tender submission? It will be rejected or not if the bidder can't submit the sample?		Not mandatory during submission but may be required after contract agreement.
109	Please kindly supply electronic Google map edition of the preliminary survey by the employer.		Not available
	For Cables:		
110	Type Test	<p>“All the cable types and sizes i.e. items offered should have been fully type tested as per IEC with amendments at any internationally accredited third party testing lab.”</p> <p>“For each type and size the type test shall be got carried out independently.” as specified in clause 15 ,in page 74 of Volume II.</p>	<p>Can type test report for cables similar structure used for biding documents</p> <p>Confirm.</p>
11kV XLPE POWER CABLE			

111	The structure of metal	<p>The metallic screen is copper wire based on “Helically wound copper wire screening with equalising tape, shall be provided on each conductor” as specified in clause 1.2 ,chapter 3 of Volume II;</p> <p>The metallic screen is copper tape based on “Thickness of Copper Screen is 0.12mm” as specified in 22th of Page 214 and cross section drawing in Page 274 of Volume II; The metallic screen is copper wire and tape based on “A binder tape of annealed plain copper shall be applied in the form of an open helix over the copper wire screen” as specified in clause 1.15 of Page 58 of Volume II.</p>	<p>Which is the required metallic screen for this project? (1) copper wire; (2) copper tape; (3) copper wire and tape.</p>	As per specification
112	Rated short circuit current	<p>The rated short circuit current of 11kV system is 25KA/3S as specified in clause 1.3, chapter 2 of Volume II. We need the rated short circuit current of metallic screen for calculating the thickness of metallic screen.</p>	Is 25KA/3s the rated short circuit current of metallic screen?	As per specification
113	Oversheath	<p>The oversheath is HDPE as specified in clause 1.2 and 1.16 of Page 57 of Volume II; The oversheath is PVC based on “Nominal Thickness of PVC Outer Sheath” as specified in clause 1.2 and 1.16 of Page 57 and cross section drawing in in Page 274 of Volume II.</p>	<p>Which material is used for oversheath? (1) HDPE; (2) PVC</p>	HDPE

114	Amour	There are 4 kinds of materials used for cable amour based on “The armour of cables shall consist of aluminum wires or strips. The armoring shall be applied such that the minimum area of coverage shall be 90% and the gap between any two armour strips/ wire shall not be more than the width of strip/ diameter of armour wire. The galvanized steel strips/wire shall comply with the requirements of IEC with latest amendments” as specified in clause 1.16 in Page 58 of Volume II .	Which material is used for amour? (1) aluminum wires; (2) aluminum strips; (3) galvanized steel strips; (4) galvanized steel wire	galvanized steel wire
LT XLPE POWER CABLE				
115	Insulation colour	The insulation colour is black based on “ All cores insulation shall be black colored ” as specified as clause 6 in Page 72 of Volume II	Can Natural be used for insulation colour	Please follow specification
116	Amour	The amour is required based on “Single core armoured cables - dimensional details” as specified as clause 2 in page 80 of Volume II; The amour is not required based on “ LT XLPE CABLE S/C 630MMSQ ” as specified as Schedule No.1 of Volume III;	Does the single cable need amour?	Yes

117	Hot deformation Test	Hot deformation Test is specified as (e) clause 15 in Page 76 of Volume II.	Hot deformation Test is not applied in PE oversheath. Can the test be deleted in type test?	Please follow specification
HV AERIAL BUNDLED CONDUCTOR (ABC)				
118	Cable standard	<p>“The insulation of the cable shall be extruded cross-linked polyethylene (XLPE) complying with appropriate test requirements specified in section 3 of IEC publication 60502” is specified in clause 2.5 of Volume II. There is not section 3 in IEC 60502.</p> <p>“The cable shall be manufactured and tested in accordance with relevant NFC Standard” is specified in clause 2.1 of Volume II.</p>	<p>Can AS3599.1-2003 be used for cable manufacturer?</p> <p>If NFC standard must be used, please inform us the name of NFC standard.</p>	NFC 33 209. If AS is applied the equivalence shall be proved.
119	Insulation colour	The insulation colour is black base on “The conductor shall be insulated by extruded black crosslinked polyethylene (XLPE) material.” is specified as clause 2.3 in Page 88 of Volume II	Could we keep the color of insulation unchanged?	Confirm.
120	Marking on the cable	“at the spacing of 5 meters. Every 2 meters of outer covering of the cable shall also be embossed with length of the cable.” is specified as clause 2.7 in Page 88 of Volume II	Length of the cable is paint on the cable, other information is embossed on the cable. Is this OK?	Confirm.
121	Ribbing on the external surface of the insulation	“The identification of the conductors shall be provided by means of ribbing on the external surface of the insulation.” is specified as clause 23.0 in Page 89 of Volume II.	Ribs occurs only on surface of the insulation screen. Is this OK?	Confirm.

122	The structure of metallic screen	Earth fault current carrying capacity of metallic screen at 1 second (1 core) kA 2.14 at 3 second (1 core) kA 1.23 is specified as Table 1 in Page 91 of Volume II. The cross-section of metallic screen is 14.96mm ² after calculation. The cross-section of 1 layer is 7.57mm ² .	Shall we use 2 layers of Copper tape for metallic screen?	Confirm.
LV AERIAL BUNDLED CONDUCTOR (ABC)				
123	Cable standard	“The cable shall be manufactured and tested in accordance with relevant IEC or latest revision thereof or any recognized international standards that ensure at least a substantially equal quality to the standards mentioned above.” is specified as clause 2.1 in Page 95 of Volume II. There is no standard in IEC.	What’s the cable standard?	Bidder is required to suggest the standard and its equivalence to IEC
124	Marking on the cable	“at the spacing of 5 meters. Every 2 meters of outer covering of the cable shall also be embossed with length of the cable.” is specified as clause 2.5 in Page 95 of Volume II.	Information of the cable is paint on the cable, Is this OK?	As per specification
125	The structure of Aluminum conductor	“The lighting conductor shall be of multi-strand round compact hard drawn aluminum conforming to IEC 61089 with XLPE insulation.” is specified as clause 2.7 in Page 95 of Volume II.	The structure of 16mm ² Aluminum conductor is uncompact usually. Is it using in this cable?	As per specification

For other products:				
126	Volume II-Section 6.4-Technical Data Sheets & Drawings		We do not find the drawings of RMU, Please provide the drawings of RMU or Configuration list of VCB Panel and LBS Panel..	RMU configuration shall be as per BOQ and specification
127	Volume II-Section 6.3-Specification of Equipment	G-Ring Main Unit-6.2(K)	Please clarify whether the PT panel should be provided for all RMUs.	As per specification
128	Volume III-Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad	Item E-5	According to the BoQ, Outdoor type 11 KV SF6 type extensible and motorized one way smart Ring	As per BOQ
			Main Unit (RMU) complete with LB and with FPI. Please clarify that the one way smart RMU including one riser panel and one load switch panel.	As per BOQ
129	Volume II-Section 6.3-Specification of Equipment	G-Ring Main Unit-6.13-Power Supply-6.13.4 Battery	Please clarify that the battery should have capacity for 5 switching operations and 48 hours of operation of RTU / Modem / Communication for SCADA in the event of supply failure.	refer Above
130	Volume II-Section 6.3-Specification of Equipment	G-Ring Main Unit-7-Technical data	According to the data sheet 7.1-2, impulse withstand voltage is 95k V but in Section 6.4 this value is 75, Please clarify.	refer Above
131	Volume II-Section 6.3-Specification of Equipment	M-Vehicle mounted single phase modular cable fault locating equipment	According to 4.2 “The CFL vehicle shall have practical safety devices including automatic checks inter-locking circuit”, Please clarify that we need to provide the CFL-equipment or the the whole CFL vehicle.	Whole CFL vehicle

132	Volume III-Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad	Item-F-LT Feeder pillar-1, 2, 3	According to “metering arrangement on incomer suitable for outdoor installation” Please clarify that whether this specification means the metering should be installed on the door of panel.	Yes
133	Volume III-Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad	Item-F-LT Feeder pillar-4,5	According to “suitable for outdoor installation”, we wonder to know that the requirement of outdoor installation is applied to MCCB or Panel. Please clarify	Panel
134	Volume III-Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad	Item-F-LT Feeder pillar-1,2,3,4,5	We would like to know whether the drawings of Type A, B, C, D, E could be provided to us. Please clarify	Will not be provided. Contractor is required to provide the drawing for approval.

135	Volume III-Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad	Item-F-LT Feeder pillar-5	Whether the TPN is MCB and should be 3P+N; According to the BoQ that is 4P, but according to the Specification the incomer is 4P and the outgoing is 3P. Please clarify.	Please follow BOQ
136	Volume II-Section 6.3-Specification of Equipment	Item-H-Feeder pillar box-5.1.6	“Average minimum thickness of the sheet for door shall be 3.15 mm for the Mini Pillar”. The minimum thickness must be 3.15mm, Please clarify.	Confirm.
137	Volume II-Section 6.3-Specification of Equipment	G-Ring Main Unit-G.1.2	“The Architecture shall include a central processing module; and Digital and Analogue Input/ Output (I/O) modules.” We would like to know whether Digital Input/Output(I/O) is accepted. Please clarify.	Both required
138	Volume II-Section 6.3-Specification of Equipment	G-Ring Main Unit	We did not find the technical data sheet for FRTU, Please clarify.	TDS not available, equipment shall be as per specification
139	Volume II-Section 6.3-Specification of Equipment	G-Ring Main Unit-G.1.3/4	“The minimum storage capacity shall be 50000 events” “The measurement storage conditions (configured individually) can be combined. The minimum storage capacity shall be 20000 measurements.” According to the specification the storage is 50000&20000, that value is larger, Please clarify	as per specification

140	Volume II-Section 6.3-Specification of Equipment	G-Ring Main Unit-G.1.11	The FRTU must be capable to support PLC programming. Whether the Single Chip Mickeyo is accepted, please clarify.	as per specification, decided during DDE
141	In Volume-II, section 6.3 and 6.4	In Volume-II, section 6.4 Page63, cable drawing showed that metallic screen is cooper tape. And in Volume-II, Section 6.3, C-1.15, the metallic screen shall be of plain copper wires, applied a binder tape of annealed plain copper.	We request you to confirm if the metallic screen is copper wire with a binder tape of annealed plain copper.	refer above
142	In Volume-II, Section 6.3, C-1.16	In Volume-II, Section 6.3, C-1.16, the armor of cables is aluminum wires or strips. However, in Volume-II, section 6.4 Page63, it shows the armor is steel tape.	We request you to confirm which one we should follow.	refer above
143	Page No. 10 - 2.8. Dismantling of Existing 11 kV, 1T overhead system and the street lights:	2.8.1 Dismantling of the selected existing 11 kV system, LT overhead system and theselected street lights shall be carried out by the Contractor as instructed by theEmployer.	Who is responsible for stored dismantled material (What is the distance of NEP store from side location) and please confirm the timing of dismantle of existing 11 KV system and street light?	please refer PSR
144			What is the ratio of incentive if we wili complete the work before time if we complete 3 or 4 years?	no incentive

145			If work cannot be completed within reasonable time due to any reason local level disturbance and delay of NEA in that case who will bear the late penalty.	please refer GCC
146			What is condition for pre inspection of material and HDD machines or supply presence required.	The equipment used for HDD shall be capable of drilling at least 100m at one go. Please refer bid document for other requirements of HDD.
147			Subcontractor has to understand whether there is rock/stone underground as rocks/stones have very bad effect on trenchless works. So, please kindly check whether underground soil condition data is available and send the same if there is.	contractor has to assess
148	Project specific requirement :1.1.3 Scope Activities:	7. Dismantling of Existing 11 kV system including DTs, LT overhead system and the street lights etc. (required if any). Cost for such works shall be included in the installation of the respective items.	kindly provide the approximate quantity for items to be dismantled.	During Detail Design Engineering

149	2.0 Detail Scope	<p>2.1.3 The mapped details of the underground utilities such as water, sewerage, telecom etc. may also be provided to the Contractor for reference (wherever possible), however the contractor shall have to prepare afresh/update the same by carrying out the mapping of the existing underground utilities by GPS and GPR (Ground Penetrating Radar) equipment to avoid the damage to any utility at the time of execution</p>	<p>Kindly confirm wheather 100 % route is to be surveyed by GPR and if drawing is to be preoared for all routes. Please also confirm target depth of GPR survey.</p>	confirm
150	11. Specific Requirements.	<p>g. All RCC shall be of M-25 grade (Minimum) with mixed design conforming to relevant international standard/BS. All Reinforcement steel shall be of FE-500(Minimum) grade conforming to International standards /BS.</p>	<p>Kindly reconfirm the Grade of RCC is M 25.</p>	confirm
151	In volumn III, Section IV	<p>Price schedule the quantity of OFC cable is 125 km whereas the quantity of 40 mm dia HDPE is 375 km.</p>	<p>What for the difference of quantity will be used . Wheather this quantity will be erected or to be handed over to store.</p>	Spare pipes shall be laid for future expansion
152	In volume III, Section IV	<p>price schedule the combined quantity for HT & LT cable is 405 km whereas the quantity of 125 mm & 160 mm dia HDPE is 650 km.</p>	<p>What for the difference of quantity will be used . Wheather this quantity will be erected or to be handed over.</p>	Spare pipes shall be laid for future expansion

153	In volume III, Section IV	Price schedule item 15. Construction of double-decker Cubicle/Room for providing Distribution Transformer alongwith RMU and LT feeder pillar including finishing but excluding excavation, RCC, Reinforcement, PCC etc as above	Kindly provide the tentative size / drawing of the building.	will be decided during DDE
154		Integration with existing systems, testing and commissioning, along with the support services including operation and maintenance of the installed system for a period of 3 years after the commissioning of project.	Kindly confirm the details of activities to be carried out as operation and maintainance for three years.	refer specification
155	Volume II Section 6.3 Specification of equipment D1: HV ABC 6: Bid Documentation Table 1			Please read Nominal at 2,3,4,6 and 7 as Minimum