



རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཟེའུ་རྒྱུད་རྩུལ་ལག་ དཔལ་ལྷན་འབྲུག་གཞུང་།  
 Royal Government of Bhutan  
 Ministry of Economic Affairs  
**Office of the Bhutan Power System Operator**  
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**NIT No.:** 03/BPSO/Tender/Vol-I/2022/03 dated December 19, 2022  
**Project:** Revamp of SCADA and Telecommunication Systems

**A) Volume - I: Commercial Bids**

Sl. No	Clauses	PDF Page No.	Tender description	Prospective Bidders' comments	BPSO comments
1	NIT	7	Lot 1 and Lot 2 under <b>"Revamp of SCADA And Telecommunication Systems"</b>	We understand both Lot 1 & Lot 2 are independent of each other and Bidder has the option to participate in either lot and not necessarily simultaneously for both lots.	The bidder has the option to bid Lot 1 Or Lot 2 or both.
				Referring to the pre-bid discussion, we understand that bidder can choose to participate either lot 1 or lot 2 & both the lots will be evaluated separately. Please confirm	
				Can we propose only Lot1 or Lot 2 or both Lots are to be proposed together for a single order to a single contractor?	
2	ITB and BDS 20.1	35	The Currencies of Bid shall be: <b>Bhutanese Ngultrum</b>	BPSO to allow Bid in Indian currency i.e. INR. Also all the payments w.r.t. project shall be INR. It will smoothen the payment transactions during execution of project.	Refer main text of the Addendum.
				We would appreciate if the currency of the proposal may be USD or Euro as well.	
3	ITB and BDS 22.2 & 40.1	35 & 36	<b>Bid Security and Performance Security:</b> 1. Bid Security 2. Employer's banks for Tender Fee and EMD	Please specify the list of banks applicable for Tender Fee, Bid Security and Performance security.	Financial Institutions in Bhutan: <i>BoB, BNB, Druk PNB, T Bank, BDBL.</i>
				Please kindly confirm if we can get the Unconditional and irrevocable Bank Guarantee issued from a 1 <sup>st</sup> class Turkish bank	There is no change to the tender stipulations.



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			3. The Performance Security shall be provided in any one of the following forms ...	without a counter guarantee from a Bhutanese Bank.	
				Performance Security is clear for submission within 30 days after receipt of the Notification of Award but validity period is not clear. To issue Performance Security Bank need to have the validity period. BPSO to mention the validity period clearly.	Refer Table 2: Extra Information to SCC (PDF Page No. 54)
4	ITB and BDS 24.10	36	Bidders [“ <b>shall not</b> ”] have the option of submitting their Bids electronically.	Please allow on line bid submission instead of physical submission of bid in the form of hard copy. Hardcopy can be submitted after award of contract for BPSO reference.	There is no change to the tender stipulations.
5	ITB and BDS 33.2 ( e)	36	A) Experience and Technical Capability	<p>Is it a mandatory qualification criteria for LOT-II (Revamp of Telecommunication System) or would it be considered if the Firm/Bidder has Technical Capacity/Capability/ Resources, though may not have the similar project experience on the solution asked for in the RFP/Tender? Because, MPLS-TP solution/Technology has never been implemented in Bhutan, thus none of the local firms has an experience in it. However, the local Firm may have the Technical Capability to implement the technology without seeking assistance from outside.</p> <p>Similar work means Communication Infrastructure project of similar size in Power application. We have successfully completed the survey, design, engineering, document preparation, supply, deployment, testing, commissioning and Training of Communication Infrastructure project for Thimphu region consisting of multiple, RF frequencies and Fibre backhaul (more than 600Nodes). This wireless equipment system which</p>	Refer main text of the Addendum.



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				includes Wireless CPEs, BTS, PTP equipment, NMS Server and Software (for integration with SCADA/DMS software). The scope of work also includes the PC Workstation, SDH, PABX, IP Phone, UPS, Auxiliary power supply, panel enclosures and other associated works.	
			B) Financial Capacity	The Financial capacity mentioned under same section-II BDS, (B), (ii) is depriving many local Firms from participation as may not meet the average annual turnover due to covid-19 pandemic. We would like to request BPSO to consider other means of financial capacity assurance, like credit limit from the Bank.	Refer main text of the Addendum
6	GCC and SCC 1.2.6 (a)	52	The applicable Incoterms edition shall be of: <b>2020</b>	Please clarify which incoterm is applicable as per Incoterms 2020.	Refer main text of the Addendum
7	GCC and SCC 3.2.1 & 3.2.2	52	<ul style="list-style-type: none"> <li>The amount of the Performance Security ...</li> <li>For Contracts not deducting deducting retention money ...</li> </ul>	<p>Performance Bank Guarantee (PBG) @ 10% shall be provided with validity up to 30 days beyond DLP (1 year). Any retention?</p> <p>Kindly confirm if we can submit the Retention BG for 10% of the contract value valid till DLP at the beginning of the contract so as to avoid this deduction from every bill.</p> <p>Retention of payment from each payment due is not acceptable. Please remove this clause as BPSO shall not hold any payment till the completion of DLP which is 12 months from commissioning.</p>	There is no change to the tender stipulations.
8	GCC and SCC 5.1.1	53	Key Personnel: Refer Table 2	BPSO asked to have One Project Manager and two technical expert for the project implementation. As SDF (Sustainable Development Fees) @ INR 1200 per day is chargeable by Bhutan	There is no change to the tender stipulations. However, BPSO can



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				Government to Indians so it will be very expensive if we keep 3 personnel's for 13 Months in Bhutan. Can BPSO will arrange a work permit from labor department and make sure SDF is not applicable for project managers and Technical staffs working for the project.	provide all the necessary processing documents.
				In case a company may be awarded Lot 1 and Lot 2 together, we would appreciate your kind confirmation that 1 project manager will handle both Lots.	Employer would consider it.
			The amount to be deducted for the key personnel not employed by the Contractor for ...	Bidder requests BPSO to kindly elaborate on this clause.	Refer GCC 5.1 (PDF Page No. 80)
9	GCC and SCC 5.3.3	53	The amount to be deducted for the equipment not available at site ...	Not clear, please clarify the equipment as referred.	Refer GCC 5.3 (PDF Page No. 82)
10	GCC and SCC 8.4.1	53	<b>Liquidated Damages</b> <ul style="list-style-type: none"> <li>The applicable rate for liquidated damages for delay shall be: 0.10% of contract price per day</li> <li>The maximum amount of liquidated damages shall be: 10% of the contract price</li> </ul>	Please modify the clause as below: <ul style="list-style-type: none"> <li>The applicable rate for liquidated damages for delay shall be: 0.10% of delayed portion of contract price per day and overall maximum amount of liquidated damages shall not exceed beyond 10% of the delayed portion of contract price.</li> <li>LD shall be the sole remedy. The applicable rate for liquidated damages for delay shall be: 0.5% of undelivered portion price per week subject to maximum of 5% of total contract price."</li> </ul>	There is no change to the tender stipulations.



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11	GCC and SCC 10.1.1 & 10.3.2	53	The Defect Liability Period shall be: <b>12 months</b>	We understand Defect Liability Period shall be 12 months from the date of commissioning as per project schedule.	There is no change to the tender stipulations. Refer Volume – II, Lot 1, Part A, Section 4, Clause 4.9; and Volume – II, Lot 2, Section 5, Clause 5.9.1 respectively.
				Bidder understands that DLP will start from the date of receipt of material at site. BPSO to confirm.	
12	GCC and SCC 13.1.1	53	The Contract Price is <b>not</b> adjustable	Bidder requests BPSO to amend the clause as below: The contract price is adjustable to the extent of any additional work different from the defined scope and also to the extent of change in taxes, duties, levies due to statutory variations.	There is no change to the tender stipulations.
13	GCC and SCC 13.2.1 (a)	53	The Mobilization Advance Payment shall be a maximum of ten percent (10%) of the ...	Bidder requests BPSO to amend the clause as below: Request to submit the bank guarantee issued by any reputed bank in India/Banks in Bhutan.	There is no change to the tender stipulations.
14	GCC and SCC 17.1	53	1. Loss of or damage to the Works including Employer issued materials, if any and 2. Loss of or damage ...	Kindly confirm whether the mentioned insurance policies are taken by employer for this project and in case of any claim, employer will take care in settlement of the same. Further please confirm.	Refer GCC 17.1 (PDF Page No. 108)  The deduction will depend upon the insurance company.
				What is the minimum amount of deduction applicable under these policies?	
15	GCC and SCC 19.2.2	54	Arbitration (Complete clause)	Bidder requests BPSO to amend the clause as below: The arbitration shall be conducted by sole arbitrator to be	There is no change to the tender stipulations



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				appointed mutually by both the parties and the place of arbitration shall be Mumbai".	
16	GCC 3.2	74	<b>Performance Security:</b> The Contractor shall, within thirty (30) days of the Notification of Award, provide a performance security equivalent to ten percent (10%) of the Contract Price valid until as specified in SCC. However, in case of delay in completion of the ...	We request BPSO to modify this clause as below: The Contractor shall, within thirty (30) days of the Notification of Award, provide a performance security equivalent to 3% percent (3%) of the Contract Price valid until as specified in SCC. However, in case of delay in completion of the Contract, the validity of the contract performance security shall be extended by the Contractor for such period of delay.  Employer shall encash the performance security to avoid it becoming invalid in case of failure by Contractor to extend the validity by the date of expiry. Further, BPSO to share the written notice to the contractor at least 45 days prior to ensure the coordination & arranging bank guarantee extension from the bank.	There is no change to the tender stipulations.
17	GCC 3.5.1	77	<b>Emergency Work:</b> If, for reason of an emergency arising during the execution of the Contract, any protective ...	Any emergency work to be executed shall be within the battery limit of scope defined in the contract. Carrying our emergency works as per contract shall be mutually agreed between project manager of BPSO and contractor authorized representative keeping in mind other aspects of project schedule and any implications on the milestone thereof.	There is no change to the tender stipulations.
18	GCC 9.1.2	87	<b>Test on Completion:</b> The Contractor shall provide to the Project Manager with	Please modify the clause as below: The Contractor shall provide to the Project Manager with a minimum of Seven days (7) days' notice of the date after which	There is no change to the tender stipulations.





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			a minimum of twenty-one (21) days' notice of the date after which the Contractor ...	the Contractor shall be ready to carry out each of the tests on completion. Unless otherwise agreed, tests on completion shall be carried out within fourteen (14) days after the notice period on such day or days, as the Project Manager shall instruct.	
19	GCC 9.2.2	88	<b>Taking Over of Works:</b> On successful completion of Works or any part thereof and upon request of the Contractor for taking over the Works and issuance of Taking Over Certificate (TOC), ...	We request BPSO to modify this clause as below: On successful completion of Works or any part thereof and upon request of the Contractor for taking over the Works and issuance of Taking Over Certificate (TOC), Employer shall, within forty-five (45) days after the receipt of the Contractor's application, or within fifteen (15) days from the date of actual handing over of relevant Works, whichever is earlier, either issue the TOC or reject the application giving its reasons and specifying the work required to be done by the Contractor to enable the TOC to be issued.	There is no change to the tender stipulations.
20	GCC 10.1.1	89	<b>Correction of Defects:</b> The Project Manager shall check the Contractor's work and notify the Contractor of any Defects that ...	Please modify the clause as below: The Project Manager shall check the Contractor's work and notify immediately within 3 days to the Contractor of any Defects that are found. Every time notice of a Defect is given; the Contractor shall correct the notified Defect within the length agreed between BPSO Project Manager's and contractor project manager.	There is no change to the tender stipulations.
21	GCC 12.4.1	94	<b>Adjustment of the Contract Price:</b> If reduction or increase in the Contract Price due to	We request BPSO to amend the clause: Quantity variation beyond 20% shall be as per rates negotiated mutually.	There is no change to the tender stipulations.



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			Change is found to be more than twenty percent (20%) of the Contract Price, the Contract Price shall ...		
22	GCC 13.2 & 13.3	97 & 98	<b>Contract Price and Payment</b> <ul style="list-style-type: none"> <li>• Advance Payment</li> <li>• Terms of Payment</li> </ul>	<p>We request you to kindly share detailed Payment terms (including Milestones). From both Clauses, we can get only bare minimum information about 10% advance and 10% retention.</p> <p>The payment terms (stages of payment with time line) is not clear. Will be useful if BPSO can clear the stages of payment with time line.</p> <p>No payment terms are mentioned in the tender document. Only 10% interest free advance against BG is mentioned at clause no. 13.2. Bidder request BPSO to provide complete Terms of Payment.</p> <p>Please accept below payment terms:</p> <ul style="list-style-type: none"> <li>• Supply – 25% Interest free Advance along with PO, remaining 75% of supply payment through site LC. LC to be opened along with manufacturing clearance.</li> <li>• Services – 100% of service payment on pro-rata basis within 1 month of date of submission of invoice and MOM.</li> </ul> <p>AMC – On pro-rata basis, quarterly payment within 1 month of date of submission of invoice and MOM.</p> <p>Please kindly confirm our understanding for the payment milestones :</p>	Refer main text of the Addendum.





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				<p>a. 10% advance payment (To be recovered back proportionally)          b. 75% secured payment against shipment and inspection at site          c. 10% at clearance of defects or against a bond of same amount valid until clearance of defects</p> <p>Then, please kindly inform when 15% will be paid.          In addition, please kindly inform the secured payment method.          Please kindly confirm that your esteemed organization will open an irrevocable letter of credit for the payments.</p>	
23	GCC 13.4 & 13.4.2	98 & 99	<p><b>Taxes and Duties:</b>          The prices bid by the Contractor shall include all duties, taxes, and levies that may be levied in accordance with the laws and regulations in force as of the date 30 days prior to the closing ...</p>	<p>M/s BPSO to provide the complete details (%age) of taxes &amp; duties (BST, GST, custom duties etc.), levies applicable for Bidding, Price calculations and evaluation of prices. Please share the details of any other local taxes if applicable. Further, please clarify if there are any taxes and custom duties wavier for this project.</p> <p>BST exemption certificate needs to be arranged by the customer within 4 days of submission of dispatch documents like export invoice &amp; packing list. The same shall be required for the clearance of the goods from Bhutan customs. Delay in the receipt of the certificate would result in detention of the vehicles at border.</p> <p>We understand that international bidders will be taxed at 3% of full invoice value as deducted at source (TDS). Please kindly inform if there are any other taxation or levies applicable. In</p>	<p>There is no change to the tender stipulations.</p> <p>For general information, the details of Taxation and Duties applicable in Bhutan can be obtained from <a href="http://www.drc.gov.bt/">http://www.drc.gov.bt/</a></p>



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				addition, please kindly inform if RGoB will apply any custom duties or levies for the materials.	
24	GCC 14.3.1	101	<b>Termination by Contractor:</b> The Contractor may terminate the Contract forthwith by giving a notice to Employer ...	Please include following Termination rights of Contractor: In the event of Termination by Customer for the reason not attributable to contractor, all direct & indirect cost shall be considered for payment to Contractor. Also, Contractor shall be entitled to Terminate the Contract in following scenarios: 1. Payment is delayed for more than 60 days from date of Invoice. 2. Input form Engineer is delayed >60 days	There is no change to the tender stipulations.
25	GCC 14.4.2	102	<b>Payment upon Termination:</b> If the Contract is terminated for the Employer's convenience or because of ...	Bidder requests BPSO to amend/add the clause 14.4.2 as below: Contractor shall also be paid for the work in progress + demobilization charges + cost of cancelling the contracts with vendors/sub vendors.	There is no change to the tender stipulations
26	GCC 14.5.4	102	<b>Suspension:</b> Under the condition (a) and (b) below, the Contractor may, by giving ...	We request to include following in Suspension rights of contractor: Contractor shall be entitled for any and/or all cost incurred due to Suspension by Employer. Contractor should be entitled to suspend the works in following events: <ul style="list-style-type: none"> <li>• Payment is delayed for more than 45 days from date of Invoice.</li> <li>• Input from Engineer is delayed &gt;30 days</li> </ul>	There is no change to the tender stipulations



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27	GCC 15.1	104	<b>Protection of Works:</b> The Contractor shall have total responsibility for protecting the Works till ...	M/s BPSO to provide the safety & security of engineers and subcontractors at site. Further BPSO shall provide safety and security of material supplied and work in progress during execution at site.	There is no change to the tender stipulations.
28	GCC 16	107	<b>Exceptional Event (Force Majeure):</b>	<b>COVID-19 Clause:</b> "The Parties are aware of the current worldwide outbreak of a Coronavirus (commonly known as COVID-19) or any mutation of such virus which is or may impact normal business and execution of this Contract. Seller shall be entitled to cost compensation, time extension, or other reasonably required contract adjustments, if any consequences whether directly or indirectly resulting out of, or in connection with the coronavirus outbreak, lead to delays in performance of Works or otherwise affect Seller's contractual obligations or duties. Seller hereby reserves the right to amend the delivery, the price, the scope and the other terms and conditions of contract set out in this offer due to the current epidemic of novel coronavirus outbreak. Notwithstanding anything to the contrary, the forgoing paragraph is deemed to be incorporated into any subsequent concluded contract.	Refer main text of the Addendum.
29	Additional clauses	-	Additional clauses required to be added	<b>Microchip shortage clause:</b> The Parties herewith declare to be aware of the global shortage in the supply of microchips and products containing microchips (the "Event"), which impacts or may impact normal business and execution of this Contract. The Parties agree that <b>Bidder</b> is	The employer cannot consider it.



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				entitled to time extension, cost compensation or any other reasonable contractual adjustment, if any consequences whether directly or indirectly resulting out of, or in connection with the Event, lead to mal-performance and/or delays in delivery of goods and/or provision of services or otherwise affect <b>Bidder's</b> contractual obligations or duties.	
30	Additional clauses	-	Additional clauses required to be added	<p><b>Russia-Ukraine Situation / Electronic Component Shortage Clause:</b></p> <p>For the purpose hereof, (i) "Russia-Ukraine Situation" means (1) the conflict between Russia and Ukraine which began on or around 24 February 2022 and/or (2) any other or further conflict which may arise out of or in connection with the same and/or (3) any economic and other sanctions imposed by, amongst others the United Nations, U.S., EU, UK, Japan Switzerland or any agency or authority against Russia, Russian entities and individuals, Russian goods, products, services, technology which may arise out of or in connection therewith, and/or (4) any economic and other sanctions imposed by, amongst others the United Nations, U.S., EU, UK, Japan Switzerland or any agency or authority thereof against any other country, entities and individuals, Russian goods, products, services, technology which may arise out of or in connection therewith;</p> <p>(ii) "Electronic Component Shortage" means the continuing global shortage of microchips or apparatus or components which include microchips.</p>	The employer cannot consider it.



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				<p>The Parties acknowledge that the Russia-Ukraine Situation and/or the Electronic Component Shortage is affecting or may have an adverse impact on <b>Bidder's</b> ability to perform the offer / Contract including but not limited to price increases, transportation and logistics constraints, shortages and price increases in the procurement of products and commodities (e.g., cooper, aluminum, steel, oil and gas). If the Russia-Ukraine Situation and/or the Electronic Component Shortage continue affecting, will or may have any adverse impact, whether direct or indirect, on <b>Bidder's</b> ability to perform the offer / Contract in accordance with its terms and/or the Law, the Parties shall, if so requested in writing by <b>Bidder</b>, negotiate in good faith and agree without delay reasonable amendments to the terms and conditions of the offer / Contract, including, but not limited to, revisions of the proposal and/or any increase in the Contract Price. In the absence of such agreement, <b>Bidder</b> shall, if it suffers delay and/or incurs additional [Costs] due to any direct or indirect impact of the Russia-Ukraine Situation and/or the Electronic Component Shortage, in any case be entitled to an extension of the Time for Completion and compensation for any additional Costs.</p>	
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**B) Volume – II and III: Lot 1 Revamp of SCADA/EMS Systems**

Sl. No	Clauses	PDF Page No.	Tender description	Prospective Bidders' comments	BPSO comments
	<b>PART A</b>				
1	Section 1: 1.4	9	<b>PMU System:</b> In addition to RTU ...	<p>Please specify the total number of PMU's reporting currently.</p> <p>We understand that there is no work is in scope relate to existing PMU system, kindly confirm if our understanding is correct</p>	<p>6 PMUs</p> <p>Your understanding is in order</p>
2	Section 1: 1.6 (u)	12	Dismantling of the existing system	As BPSO is the owner of the existing system including all hardware, software, data, files etc., we request this shall be in the scope of BPSO	There is no change to the tender stipulations
3	Section 1: 1.6 (v)	12	Any other work which is not identified in the specification ...	The bidders offered system shall be based on the tender BoQ only	There is no change to the tender stipulations
4	Section 1: 1.7	13	The bidders are advised to visit sites (at their own expense), prior to the submission of the proposal, ...	<p>We may require detailed site survey for SCADA/EMS and Telcom system, same shall be planned and intimated to M/s BPSO. Since planning and execution of site survey may take significant time to complete.</p> <p>We may have further clarifications during site survey and same shall be submitted to M/s BPSO in writing. Please allow for any other clarifications, if required.</p>	There is no change to the tender stipulations





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5	Section 1: 1.8	14	Contractor's Responsibilities and Obligations (x)	Maintenance and Services: for 5 Years or 7 years?	Refer main text of the Addendum (Part A, Section 4, Clause 4.4.2)
6	Section 1: 1.10	17	Details of the Main & Backup Control Centre functionality ...	The details of the MCC-BCC philosophy is not specified. Request BPSO to specify the same.	Refer main text of the Addendum
7	Section 1: 1.11	17	This specification document states the requirements for the civil works which ...	Request you to share layout of rooms with dimensions for civil work, ACDB, UPS & AC installations. Also elaborate civil work to be done. We request you to share the specifications of Air Conditioners.	Refer main text of the Addendum
8	Section 3: Annexure – II	42	Project Implementation Schedule (in months)	Project Implementation Plan of 8 months is very low for SCADA portion. <ul style="list-style-type: none"> <li>We recommend a minimum plan of 15-18 months and request BPSO to amend accordingly.</li> <li>Standard industry practice is 18-20 months of project timeline for such projects. Please modify the project schedule from 8 months to 20 months.</li> <li>We request 18 months completion time to implement the whole system as required in tender. Please accept.</li> </ul>	Refer main text of the Addendum
9	Section 4: 4.3.1	46	At least one Software Engineer and One Hardware Engineer ...	Our understanding is that total 4 engineers required. Please clarify	Minimum two Engineers
10	Section 4: 4.3.2.3	48	... Subsequently, the contractor is needed to implement the	Cyber Security domain is evolving continuously. Recommendations of Cyber Security Auditor findings cannot be quantified as they may recommend as per the latest Guidelines.	Refer main text of the Addendum



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			recommendation given by auditor in consultation with the owner	The recommendations may be to the extent of purchase of extra Hardware or Software which will attract commercials. We request you to limit the scope of Implementation of Recommendations (including addition of any new Hardware & Software) in Employer Scope. Contractor shall extend all necessary support to Employer for implementation	
11	Section 4: 4.4	48	The Contractor shall maintain a spares inventory at his own ...	We request that Employer shall be responsible for procurement of designated spares as notified by the contractor otherwise this becomes an open ended requirement with no cap.	There is no change to the tender stipulations
12	Section 4: 4.4.2	49	The contractor shall ensure the availability of service, spare and expansion parts ...	This clause is not acceptable because the technology landscape is constantly evolving and OEM product lifecycles are getting shorter with newer models/ refreshes being released more frequently, which is outside of Bidder's control. We request you to amend support period to 5 years from OA in line with industry standards.	Refer main text of the Addendum
13	Section 4: 4.4.2	49	The contractor shall ensure the availability of service, spare ...	1 year warranty and 5 years AMC period. i.e. total 6 years to be considered for the hardware items	
14	Section 4: 4.8.2	53	Deductions	We request the deductions be capped to the apportioned price of the apportioned quarterly AMC value	There is no change to the tender stipulations
<b>PART B</b>					
1	Section 1: 1.1.2.1	62	The communication links provided by Employer for data exchange ...	As for auto-sync of data from MCC and Backup MCC, recommended bandwidth for each channel is 1GBps	The employer will provide the channel bandwidth as needed



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2	Section 1: 1.1.2.3	63	<b>Data Exchange with other Applications</b> The SCADA system shall ...	Please provide the details of the third party applications and their interfaces which have been currently integrated.	There is no currently integrated third party applications. However, the bidder is required to provide standard interfaces for future use.
3	Section 1: 1.5.2	72	<b>Interface with Business Applications:</b> A well-documented API shall ...	Bidder requests BPSO to provide details of existing API needed to be integrated.	
4	Section 1: 1.5.3	74	A Business Tool shall be provided with user friendly configurable ...	Please clarify if any Business Tool to be provided. If Business Tool to be provided, please provide the no. of users and also request the same shall be included in the BoQ.	Refer main text of the Addendum
5	Section 2: 2.3.3	82	<b>External Equivalent</b> All boundary buses shall be retained of other utility ...	We understand that the data of the external system which is unobservable will be taken from Pseudo Measurements. Please confirm.	The measurement will be taken from ICCP points. The employer will provide the same.
6	Section 2: 2.3.9	91	Load Forecast	Load Forecast is generally done by DISCOMs as part of the demand forecast which is shared to LDCs by them. As this is already being done by the DISCOMs it may not be required to be done again at NLDC. This will also enable a single source information w.r.t demand/ load forecast. Hence, this shall be removed from the specification.	There is no change to the tender stipulations
7	Section 2: 2.3.10	92	Hydro Scheduling	As standard implementation practice, Hydro Scheduling is implemented as a separate stand-alone application taking inputs from SCADA/EMS and a part of EMS Poser System application, request BPSO to remove Hydro Scheduling from the scope.	There is no change to the tender stipulations.
				Kindly provide the list of Hydro plants along with plant data	Refer main text of the



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					Addendum
8	Section 3: 3.15	119	Integration with Electronic Documents	We understand the requirement is not for a separate Document Management System, it should be possible to open various documents from the operator workstations. Please confirm.	Your understanding is in order
9	Section 4: 4.4	123	<b>Network Software</b> In case any communication link is DOWN/OUT/Failure ...	For SMS facility, SMS gateway will be required which has to be included in BOQ. Bidder requests BPSO to provide additional line item in the BOQ for SMS gateway.	Refer main text of the Addendum
10	Section 4: 4.7.4	128	Development System as a Test Bench Development system shall be able to ...	For this Functionality, Development server will be required so development server should be integrated in BOQ. Bidder requests BPSO to provide additional line item in the BOQ for development server.	Refer Clause 4.6, Section 4, Part B, Volume - II
11	Section 5: 1.14	143	<b>Furniture:</b> Adjustable (Height) Desks (sit-and-stand with step-less automatic height adjustment)	We understand that tables are required for only operator workstations including Simulator workstations. Separate printer tables are not required. Further please clarify table for workstations as required shall be non-motorized type and do not require preset positions for different operators.	Refer main text of the Addendum
12	Section 8: 8.1.11	184	<b>Cable connections</b> All internal ... All connections between the Contractor ...	Please provide distance between customer source & proposed new UPS location.	There is no change to the tender stipulations
13	Appendix C	209	TABLE 4 - Design Parameters for User Interface (Reference Section 3)	We understand that all the parameters mentioned in <b>Appendix – C</b> System design parameters will supersede other sections defined in TS in case of ambiguity. Please confirm.	Refer main text of the Addendum



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14	Appendix G: BoQ	230		We understand that 1 lot means 1 No. Please confirm.	Refer Price Schedule, Volume – III
15	Appendix G: BoQ	230	2.4 New Generation Firewall	BPSO to clarify if next generation firewall will be capable to handle the functionality of router. Else add router in BOQ.	There is no change to the tender stipulations
16	Appendix H: Hardware Specification s	232	Operator Workstation consoles Video Graphics Card with Dedicated memory - Minimum 4GB	The hardware specifications for workstations mention "Video Graphics Card with Dedicated memory of minimum 4GB, we request to amend it to minimum 2GB so that OEMs can assign graphics RAM from 2GB onwards based on the functional requirements. Please confirm.	There is no change to the tender stipulations
17	Appendix H: 8. NAS	237	Hard Drives speed 15000 or more rpm	15K hard drives are nearing End of Life and being gradually phased out. We recommend 10k HDD or SSD in lieu of same. Please confirm.	
18	Appendix H: 8. NAS	237	Capacity Minimum usable capacity of 5 TB	NAS sizing as per TS is 5TB, however this is not sufficient considering online back of complete system and third party software utilization. Recommended capacity of 20TB minimum is required for each CC for reliability, and HDD specification for NAS needs to be changed from 15k to 10K or SSD. We request BPSO to amend accordingly.	Refer main text of the Addendum
19	Appendix G: BoQ	229		External firewall is considered without Redundancy at both MCC and BCC. Please clarify	There is no change to the tender stipulations
<b>Volume III: Price Schedule</b>					
1		6	Column No. 2, Ex-works(Nu)	Refer to the Price Schedule, we need to quote unit ex-works prices in Column 2 or total Ex-works prices. Please clarify.	Already clarified above



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				Please add 2 line items in Price Schedule i.e. any other Software or Hardware required for the system.	There is no change to the tender stipulations
2	4.2	7	Integration with DMS	We understand that existing DMS integration is part of the scope. Request to give make, model, and version of existing DMS system.	OSI's Open ICCP
	<b>General</b>				
1			Battery Bank of UPS	As tender calls for parallel redundant UPS which means 2 UPSs in parallel, please specify if the battery bank shall be common or independent for parallel redundant UPS system	Each UPS to have its own Battery bank
2				We understand that currently Western region's RTUs/SAS are reporting to WLDC Malbase and Eastern regions' RTUs/SAS ELDC Tintibi with single master reporting which means there is no direct reporting to NLDC Thimphu on IEC 104. Please confirm if our understanding is correct	Your understanding is in order
3				Kindly confirm if configurations of dual reporting at each RTU/SAS system is in bidder scope or shall be arranged by BPSO from respective vendors/OEMs?	In employer's scope
4				We understand that ICCP integration with India will be with NLDC India from respective main and back NLDC Bhutan but there will not be any ICCP connection with ERLDC India under new scheme, kindly confirm if our understanding is correct.	(b). However, configuration at ERLDC, India will not be in Contractor's scope





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**C) Volume – II and III: Lot 1 Revamp of Telecommunication System**

Sl. No.	Clauses	PDF Page No.	Tender description	Prospective Bidders' comments	BPSO comments
<b>Section 1: Introduction and General Information</b>					
1	Section 1: 1.2(e)	252	e) Interoperability or easy transition of data from the existing makes of SDH (GE, ABB, Tejas, RAD, and ECI) to proposed MPLS-TP equipment.	Interoperability with other OEM Make SDH will have OAM issues, therefore Request to remove the interoperability from the clause.	Refer main text of the Addendum
				Please confirm whether the interoperability of proposed MPLS-TP/Hybrid will be over SDH as well as MPLS-TP with existing GE, ABB, Tejas, RAD, ECI make SDH. Please note interoperability between SDH and MPLS-TP is not possible.	
				Why the Interoperability should be maintained with the existing SDH devices (GE/ABB/Tejas/RAD/ECI)? What is the traffic running on these devices currently?	Some SDH nodes shall not be removed. So it is required to support few nodes with EoSDH services like RTU data, VoIP, PMU, etc



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2	Section 1: 1.2(i)	252	<p>i) After the site survey, the Contractor shall submit to the Employer a survey report on each site. This report shall include at least the layout of all new equipment in the room as required, proposed routing of power, earthing and cables, availability of space and AC/DC power supply, proposals for new panels/trenches/facility modifications if required and identify all additional items required for integration at each site/location.</p>	<p>We are assuming that site survey along with other associated work mentioned in said clause shall be submitted after the receipt of LOA. Please clarify.</p>	Yes.
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3	Section 1: 1.2(u)	253	u) Provide detailed Maintenance and Management plan for the next 3 years from the end of Defect Liability Period. The plan should include minimum of 1 key technical staff capable of providing technical support and services at site.	Do we have to station one Engineer in BPSO NOC for support & onsite visits? SOW doesn't have any provision for this costing. Please let us know Where this cost to be added. Please clarify.	Yes. Please include the costs associated in AMC charges.
4	Section 1: 1.2(w)	253	w) All cabling as required, including cable trenches, hose pipe, wiring and interconnections to the equipment being supplied and integrated (new and existing) at the defined interfaces."	We are assuring there are existing trenches available for laying the all desired interfacing cables for proposed MPLS-TP FOTE system hence no civil work is involved. Also supply of DC cables for 48V DC power required for FOTE system, AC cables for exhaust fan, Ethernet cables (CAT5/6) for data communication and control cable for distance teleprotection application is not in vender's scope and same existing cables will be used considering the revamping of old SDH system. Please clarify.	There is no change to the tender stipulations.



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5	Section 1: 1.2(bb)	254	bb) Transportation of equipment and all other components from location of manufacturing to the locations of installation. The Contractor shall also make necessary arrangements for transportation/shifting of the material from stores to respective sites for installations. Statutory clearances including clearance of customs, entry tax as required for all the supplied items.	We are assuming loading/unloading and storage of material is not in Vender's scope. Please confirm.	Refer Volume-I, GCC and SCC 1.2.6 (a)
6	Section 1: 1.2(dd)	254	dd) Functional and performance test of the complete system concerning and connecting all the MPLS-TP based telecom equipment, compatibility test carrying STM 4 level traffic in supplied MPLS-TP system and NMS.	We believe here that interoperability between proposed FOTE and 3rd party equipment over SDH functionality shall be tested for the hybrid nodes and not for MPLS-TP. Please confirm.	Refer main text of the Addendum.



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7	Section 1: 1.3	254	Mandatory Qualification Criteria	Mandatory Qualification Criteria for Bidder and OEM is not clear, The details specified in this clause 5 numbers of MPLS-TP equipment along with NMS supplied in the preceding seven (7) years & should have satisfactory operation for the period of minimum two (2) years does it for Bhutan? If a bidder is not an OEM submission of OEM authorization is not mentioned.	Refer main text of the Addendum.
				Qualification Criteria is met partially by us, as we have supplied MPLS-TP supported device but predominantly for SDH usage and not for MPLS-TP. Will that be OK?	
<b>Section 2: Network Configuration &amp; Equipment Characteristics</b>					
1	Section 2: 2.2.2(a), 2.2.2(h)	261	a) Low speed (100-1200 kbps) data channel from RTUs to respective data center in case of existing RTUs. At present 10Mbps of dedicated bandwidth is used to connect all RTU spread throughout the network.	Please confirm if low speed (100-1200 kbps) data channel on MPLS-TP equipment is required or not as all RTUs will be interfaced with Ethernet Channel (TCP/IP using IEC 60870-5-104 protocol described on 2.2.2.c).	Low speed (100-1200 kbps) data is the output from each of our RTUs. Ethernet interface should suffice for the data channel requirement.
			h) MPLS-TP based backbone network with modular 1+1 redundant	Can you please confirm the Packet fabric Capacity to be supplied need clarity on number of downlink and uplink interfaces required for each site?	Refer Appendix B, Figure B-2



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			<p>chassis with min 4 x 10G and option to add 10G interfaces for future upgrade. The system should have the capability to support E1 and STM1 CEM.</p>	<p>Please clarify the switching capacity required for MPLS-TP box.</p>	
				<p>We understand that E1 &amp; STM-1 support via smart SFP or CES card is allowed. Please clarify</p>	<p>E1 &amp; STM-1 support via smart SFP is not allowed. SDH traffic needs to be converted to MPLS traffic at adjacent nodes and additionally, require circuit emulation capability.</p>
				<p>With present MPLS-TP solution offering it is only possible to communicate Circuit Emulation Services over Packet Switch Network using few VC 12 (E1) container along with SDH interface in combination with Circuit emulation interface module and will be the right choice, In case whole STM1 streams to be transported then shall be transported using smart SFP's which is not recommended option for this case. Please clarify.</p>	
2	Section 2: 2.2.3	262	<p>System Synchronization The Contractor shall provide clock synchronization at a central location. The clock signal will then be distributed downstream for all communication equipment available at each</p>	<p>This clause leaves out information about the 1588V2 and SyncE clocks, the maximum number of clock sessions that a single device can support, and the provision of a backup clock over a packet network. It is also rather ambiguous. However, because both primary and backup clock grad master devices will be required for MPLS device synchronisation, this is extremely important for the network backbone. I would respect any information you could provide regarding this clause.</p>	<p>There is no change to the tender stipulations.</p>





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			<p>termination equipment location. Where clock cannot be distributed over communication interface, separate GPS shall be provided for synchronization purpose. Appropriate interface(s) in the termination equipment to be supplied and all other associated hardware shall be provided by the contractor.</p>	<p>What about the Synchronization? Should we need to provide GPS clocking everywhere for MPLS-TP network?</p>	<p>GPS clock is required only at one location if it is sufficient. The network should carry the clock signal</p>
3	Section 2: 2.3.2(a)	263	<p>a) Teleprotection Interface          1. Integrated distance teleprotection interface          2. Integrated optical teleprotection interface</p>	<p>We will offer separate product for distance protection and Differential Protection. Both technologies and applications are different. Please confirm the qty of Differential / Distance Teleprotection systems required in this project.</p>	<p>Refer Section 2: 2.2.1 and Appendix B, Bill of Quantities, Table B.1</p>



རྒྱལ་ཁྲིམས་དང་འཕེལ་འགོའ་ཐོན་སྐྱོད་ལྷན་ཁག རྒྱལ་ཁྲིམས་དང་འཕེལ་འགོའ་ཐོན་སྐྱོད་ལྷན་ཁག  
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		264	a) Teleprotection Interface 5. 1+1 switch-over less than 10ms	Do you require Teleprotection with 1+1 redundant configuration? 1. E1 and IEEE C37.94 Optical uplinks 2. or 1+1 redundant E1 uplinks 3. or 1+1 redundant E1, IP/Ethernet and IEEE C37.94 Optical uplinks. As in the Appendix D (Technical Requirement Sheet), both E1 and IEEE C37.94 interfaces are mentioned. Please confirm the required uplink interface for Teleprotection. Also uplink redundancy will increase the cost and this may not be required as there is separate main and back up relays at each substation.	Refer Section 2: 2.3.2 (a), (b) and 2.3.3
4	Section 2: 2.3.2(b)	264	b) Interface for Commands Tx/Rx for Distance Protection Scheme 1. Number of independent commands- Min. 4 commands Max. 32 commands	We will offer Teleprotection with 8 Number of Input and 8 Number of Output Binary Commands (fixed configuration), as mentioned in Appendix D (Technical Requirement Sheet). Please confirm.	Refer main text of the Addendum.



རྒྱལ་ཁབ་འཕེལ་རྒྱུ་ལྟེ་སྒྲིལ་ལྷན་ཁག་ རྒྱལ་ཁབ་འཕེལ་རྒྱུ་ལྟེ་སྒྲིལ་ལྷན་ཁག་གི་འཕེལ་རྒྱུ་ལྟེ་སྒྲིལ་ལྷན་ཁག་  
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5	Section 2: 2.3.3	264	<p>The contractor shall provide 1+1 redundancy on the power supply cards, controller cards, and traffic cards for the terminal equipment and its peripherals</p>	<p>Request BPSO to confirm whether they are looking at system having capability of supporting redundancy on traffic cards like E1 / STM4 / Ethernet interface or do we need to include this as part of BOQ configuration?            In case if 1+1 traffic card redundancy is needed then there will be requirement of two cards of each type i.e 2 Ethernet cards with LAG provisioned across two cards or MPLS-TP tunnel provisioned across two cards .            Request BPSO to clarify number of Ethernet ports, E1 ports and STM1 / 4 ports required at each site.</p>	<p>Refer main text of the Addendum.</p>
			<p>In case the equipment offered by the Bidder does not support the above-mentioned minimum protection methods, the bidder shall have to provide all additional equipment needed to provide same level of flexibility, redundancy and functionality at no additional cost to Employer. The bidders shall provide</p>	<p>Please clarify whether 1+1 redundancy required at traffic cards too or not?</p> <p>Each equipment will be assigned with IP address for Management purpose. In case if two equipment are deployed at each site then two different IP address would be assigned to equipment -If two IP solution is OK and if no client protection across chassis is required, then we can consider two box solution.</p>	



རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཟོན་སྲུང་གི་ཉམས་ལེན་ དཔལ་ལྷན་འབྲུག་གཞུང་།  
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		details of protection schemes supported in the Bid document		
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རྒྱལ་ཁབ་དང་འབྲེལ་བའི་ལྷན་ཁག་ དཔལ་ལྷན་འབྲུག་གཞུང་།  
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6	Section 2: 2.4.1	265	<p>The FO Communication equipment to be supplied shall be MPLS-TP providing all the features e.g. protection and performance monitoring. It should offer carrier-class Ethernet, MPLS and IP capabilities to carry converged, multi-service Packet Networks like SCADA, Automation, Teleprotection and Legacy applications. This shall be integrated with existing SDH network. The new</p>	<ol style="list-style-type: none"> <li>1. Request BPSO to confirm the requirement of IP MPLS capabilities and software to support IPV4 and IPV6.</li> <li>2. Request BPSO to confirm the length and connector type of patch cords at FODP end to supply the right type of patch cords.</li> </ol>	<ol style="list-style-type: none"> <li>1. Refer main text of the Addendum</li> <li>2. For calculation purpose assume patch cords of 20m length. However, the contractor have to visit the site for actual distance calculation. The connector towards the FODB is mostly FC or SC. Towards the present SDH equipment is LC.</li> </ol>
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རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཐོན་སྐྱོད་ལྷན་ཁག རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཐོན་སྐྱོད་ལྷན་ཁག  
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			<p>equipment to be supplied shall be interoperable with different makes of SDH and other network elements.</p> <p>All software and hardware shall support IPv4 and IPv6 simultaneously. The Contractor shall provide connectorized jumpers (patch cords) for FODP-to-equipment and equipment-to-equipment connection.</p>	<p>The proposed Hybrid/MPLS-TP equipment has been tested with interoperability of Ethernet and E1 functionality for 3rd party SDH and MPLS-TP, however interoperability over distance teleprotection and differential teleprotection using IEEE C37.94 with third party SDH or MPLS-TP is not possible being proprietary nature communication protocol and being used so called "mission critical application" hence request to delete interoperability of teleprotection from tender document. Please note that proposed FOTE solution supports IPv4, we do not see the requirement of IPv6 functionality, as most services are transmitted transparently on a MPLS-TP network on Layer-2.5 (label switched), hence not needed.</p>	<p>Interoperability of Teleprotection between new MPLS-TP equipment and existing SDH would not be required.</p>
7	Section 2: 2.4.1(a)	266	<p>a) The equipment shall be compact and in composite construction and light weight suitable for installation in 1RU width 19"" rack. All modules shall be integrated in the same shelf. All connectors shall be accessible from the front</p>	<p>BPSO has asked for 1 + 1 redundant chassis with controller and power redundancy. For a modular chassis with option to support E1, SDH and Ethernet interfaces is required. Expecting the system with above specs in 1 RU will be difficult. Request BPSO to allow vendors to propose 2 U or more platform system for MPLS-TP</p>	<p>Refer main text of the Addendum. Teleprotection can be of separate box but we are not looking for multiple MPLS-TP boxes in single location.</p>





རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཐོན་སྐྱེད་ལྷན་ཁག རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཐོན་སྐྱེད་ལྷན་ཁག  
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			<p>and comply with international specifications. However, the mechanical design and construction of each card/unit shall be inherently robust and rigid under all conditions of operation, adjustment, replacement, and storage. The actual dimensions and weight of the equipment shall be furnished by the Contractor.</p>	<p>Considering the existing SDH installed base we have already supplied many SDH based FOTE system in past to BPC and those are with 9HU 19" rack, but in this case as mentioned 1RU Width of 19" rack height, however for such equipment it is normally more than 1 high unit which can be 9HU in height. This might be typographical error, hence request to please clarify.</p>	
				<p>Fixing 1RU height of optical transmission equipment will limit the major MPLS-TP manufacturers and will negatively affect the competition. Please confirm that height of the MPLS-TP equipment is requested as minimum 1RU.</p>	



རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཟེེ་རྒྱུད་རྩལ་ལག་དཔལ་དོན་འབྲུག་གཞུང་།  
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				<p>As far as we are aware, the main chassis has a 1RU limit, whereas expansion chassis can be installed on top of the main chassis to provide services like teleprotection and amplifiers. Clarify, please.</p>	
8	Section 2: 2.4.1(c)	266	<p>c) It shall support Packet and Ethernet services, MEF CE2.0 (E-Line, E-LAN, E-Tree, E-Access) which provides interoperable interconnection, management, and performance. Link aggregation with LACP (IEEE 802.3ad), PN and VPN</p>	<p>As per clause no 2.2.2 Functional Requirement h). Minimum interface requirement is 4X 10G. Here it is 3X10G. Please clarify which one is correct.</p> <p>What will be the E1 interface requirement? Is it 16XE1 or 32XE1? Also STM-1 &amp; STM-4 interface requirement is not mentioned. Please clarify.</p>	Refer main text of the Addendum.



རྒྱལ་ཁབ་དང་འཛིན་ཐོན་རྒྱུ་ལྷན་ཁག རྒྱལ་ཁབ་དྲུག་ལྷན་ཁག་གཞུང་།  
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			<p>based Ethernet and IP, MPLS –TP and multicast applications (IGMP v2/v3) shall be supported. It should have minimum interface of 8x10/100/1000Base-T, 8x100/1000Base-X, 3x10GE</p>	<p>We understand that minimum interface requirement of FE &amp; GE is 8x10/100/1000Base-T or 8x100/1000Base-X i.e. total 8 port requirement not 16 port. Please clarify</p>	
9	Section 2 : 2.4.1(l)	267	<p>l) It should define Alarm suppression and fault indication with AIS/RDI/CFI, performance monitoring for frame loss and delay with LM/DM/OAM-LB/LT, support Multi-segment Pseudowire and guaranteed service level agreement (SLA).</p>	<p>Multi segment Pseudo wire, This is related to segment routing for IP/MPLS technology and not MPLS-TP. MPLS-TP is providing end-to-end LSPs (Label Switching Path) which allows route a pseudo-wires over multiple segments. Hence not applicable in this case. Request to kindly delete this from tender document.</p>	<p>Refer main text of the Addendum.</p>



རྒྱལ་ཁབ་ཤར་པ་བཞུགས་པའི་རྒྱུ་རྩུབ་ལག་ དཔལ་ལྷན་འབྲུག་གཞུང་།  
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10	Section 2: 2.4.1(t)	267	t) It should support Circuit emulation services; SAToP, CESoPSN and CEP and Encapsulation of TDM & IP over MPLS and Ethernet VPWS, VPLS using Pseudowire. All Ethernet interface shall be configurable as client interface (UNI) and network interface (NNI).	Only the interfaces on control /core units can be configured NNI (MPLS-TP) ports - not all ethernet interfaces can be configured as NNI ports, all interfaces can be configured as UNI. Further please note that functionality of CEP is similar to CESoPSN hence not needed to mention separately, request to kindly delete the same from tender document. please clarify	Refer main text of the Addendum.
11	Section 2: 2.4.1(u)	267	u) It should support service interfaces for nx64kbps, C37.94 and E1 interface over packet.	Nx64 is required for interconnecting legacy equipment and this requirement is obsolete now .Request BPSO to confirm the numbers of sites which need nx64 support. C37.94 is used for Teleprotection. Request BPSO to allow separate drop box to support Teleprotection. Request BPSO to confirm the list of sites that required E1 CEM.	Refer main text of the Addendum.



རྒྱལ་ཁབ་དང་འབྲེལ་བའི་ལྷན་ཁག་ དཔལ་ལྷན་འབྲུག་གཞུང་།  
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12	Section 2: 2.4.1(w)	268	w) The equipment shall have power supply operating on -48 VDC $\pm$ 15%, 50Hz power	Telecommunication equipment supports +48 V DC supply, DC does not have a frequency (50Hz refers to AC). This can be typographical mistake. Please clarify.	Refer main text of the Addendum.
13	Section 2: 2.4.1(x)	268	x) The equipment shall have operating temperature between -20oC to 60oC and humidity of 95% non-condensing.	Request BPSO to kindly look at the temperature support range, For normal operation 0-45 / 50 deg supported systems should suffice for Bhutan environment. Extreme high and low temperature systems would need special cards / optics and accessories which would increase the cost of the system. In clause 4.2.1 Temperature and Humidity page 4 of 8 there is requirement to support 0 to 45 deg	Refer main text of the Addendum.



རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཟེའུ་ཕྱི་ཕྱོད་ལྷན་ཁག རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཟེའུ་ཕྱི་ཕྱོད་ལྷན་ཁག  
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14	Section 2: 2.4.1(ff)	270	ff) The expandability for future requirement to be supported by offered equipment which shall be achieved by just inserting the cards in access equipment.	We will offer Teleprotection with 8 Number of Input and 8 Number of Output Binary Commands (fixed configuration), as mentioned in Appendix D (Technical Requirement Sheet). Please confirm.	Refer main text of the Addendum.
15	Section 2: 2.4.2.1(b)	270	b) Splice loss: Minimum 0.05 dB per splice. One splice shall be considered for every 3 mms.	Looks like there is Typo error. Please confirm whether we need to consider 0.05dB per splice for every 3 Kms ?	Refer main text of the Addendum.
<b>Section 3: Network Management System</b>					
1	Section 3: 3.1	275	The Contractor shall supply a single NMS for all the NEs (Network Elements). The bidder shall provide details of the offered NMS in the bid	Request BPSO to allow separate NMS for Teleprotection systems and MPLS-TP systems.	Refer main text of the Addendum.





རྒྱལ་ཁབ་དང་འབྲེལ་བའི་ལྷན་ཁག་ དཔལ་ལྷན་འབྲུག་གཞི་རྒྱུ་།  
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2	Section 3: 3.3(III)	275	III. Remote console of NMS at Main NLDC shall be provided at Backup NLDC	Request BPSO to confirm whether NMS 1+1 hot standby server to be supplied or just a client to be supplied at Backup NLDC. Please give more clarity of requirement.	Just a client to be supplied at Backup NLDC.
3	Section 3: 3.7.2	281	DC to DC Converter The Contractor shall provide 110VDC to 48VDC converter as per BoQ. The detail specification are as follows: · Input/Output: 110V DC to 48VDC · Power rating: 500W · Mounting: Mountable within 19" rack Communication panel All the necessary cabling and miscellaneous items required for completion of the work should be under the scope of the Contractor.	Why DC-DC Converter is required?	Refer main text of the Addendum.

**Section 4: Environment, EMI, Power Supply, Cabling & Earthing Requirements**



རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཟོན་རྒྱུད་ལྷན་ཁག རྒྱལ་ཁུ་ལྷན་འབྲེག་གཞུང་།  
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1	Section 4: 4.6	289	Lightning and Transient Voltage Protection. The Contractor shall be required to provide protection from lightning and transient voltages for all wideband communications equipment, in accordance with the following:	Lightning and Transient Voltage Protection- As we understand BPSO is providing DC source of -48V for MPLS and 110V DC for Teleprotection equipment so Lightning protection may not to supply for this project. If required BPSO to add a line item in price schedule table in VOL-II	There is no change to the tender stipulations
<b>Appendix B: Bill of Quantities</b>					
1	Appendix B: Fig B-2	323	Fig B-2 BPSO Proposed network	There is no distance mentioned for new fiber connection and also to the sites connecting India and the line rate STM1/4/16 is not clear from the diagram. Request BPSO to share the same	Refer main text of the Addendum.



རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཟེའུ་ཉེ་ཉེ་ལག་ དཔལ་ལྷན་འབྲུག་གཞུང་།  
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2	Appendix B: Table B.1	320 & 321	<p>Table B.1: Bill of Quantity for Communication System</p> <p>Note: *Each set of MPLS-TP shall include at least main and redundant power supply module, controller card to access the configuration of the set and access other connected sets in the network, support for MPLS-TP functions, SFP (as per optical distance and losses mentioned in Appendix E), Ethernet Module that provides at least 8 interfaces, E1/T1 module that provides E1/T1 interfaces</p>	<p>T1 is the basic physical layer protocol used by the Digital Signal level 1(DS1) multiplexing method in North America. A T1 interface operates at a bit rate of 1.544 Mbps and All the SDH equipment supplied in past for countries like India, Nepal &amp; Bhutan follows the European Telecommunications Standards Institute (ETSI) and is formalized as International Telecommunication Union (ITU) standards G.707, G.783, G.784, and G.803 for E1 interface operate at a bit rate of 2Mbit/s hence T1 interface is not applicable in this case. Please clarify.</p>	Refer main text of the Addendum.
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རྒྱལ་ཀྱི་འཕུལ་འཚོལ་ལུགས་ལྷན་ཁག་ རྒྱལ་ཁབ་འཕུལ་འཚོལ་གཞུང་།  
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3	Appendix B: Table B.1	320	Table B.1: Bill of Quantity for Communication System B) Supply of Other Equipment II Supplementary Modules for Main Equipment 1 E1 Interface Nos. 1 2 64 kbps Interface Nos. 1 3 C37.94 Interface Nos. 1 4 Ethernet Interface Nos. 1"	Can you please clarify that each of these interfaces are for MPLS-TP main equipment or for Teleprotection main equipment.  Please clarify that 64 kbps legacy interfaces for MPLS-TP main equipment are required or not. If required, please indicate types of legacy interfaces (such as G.703, FXO, FXS, E&M,..etc)	Refer main text of the Addendum.
				What is 64Kbps Interface in Table B.1 and why it is required?	Refer main text of the Addendum
				What is Ethernet Interface in Table B.1 and why it is required?	Refer main text of the Addendum.
<b>Appendix C: Type Testing /Factory Acceptance Testing Requirement</b>					
1	Appendix C: C-1	324-328	The tests listed below are defined in IEC Publication 68.	Request BPSO to allow Either as per IEC / QM333 Standard.	Refer main text of the Addendum.



རྒྱལ་ཁབ་དང་འབྲེལ་བའི་ཕྱི་རྒྱུ་ལྷན་ཁག་ རྒྱལ་ཁབ་རྒྱུག་གཞུང་།  
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2	Appendix C: C-1.2	326	C-1.2 a) Immunity Test 2.1 ) 100/1300 uS Surge	This Test Facility is not available in Asia. Our products comply with this .Test procedure will be very expensive. It will increase the bid value. Request BPSO to consider our request and kindly make this test case as optional.	
3	Appendix C: C-1.2	326	C-1.2 a) Immunity Test 2.2 ) 1.2/50 – 8/20 uS Surges	Level 4 surge are not required for PTN products. Request BPSO to change it to Level 1 or please make it optional	
4	Appendix C: C-1.2	326	C-1.2 a) Immunity Test 2.3 ) Fast Transient Bursts	Level 4 requirements are not for PTN equipment. Kindly Change it to level 1. or please make it optional	
5	Appendix C: C-1.2	326	C-1.2 a) Immunity Test 2.4 ) Damped Oscillatory Waves	Level 4 surge are not required for PTN products. Request BPSO to change it to Level 1 or please make it optional	
6	Appendix C: C-1.2	326	C-1.2 a) Immunity Test 3.1 )Electrostatic Discharge	level 4 requirements are not for PTN Equipment. Kindly Change it to level 3. or please make it optional	
7	Appendix C: C-1.2	326	C-1.2 a) Immunity Test 4.1 )Power Frequency Magnetic Field	This Test Facility is not available in Asia. Our products comply to this. Test procedure will be very expensive. It will increase the bid value. Request BPSO to consider our request and kindly make this test case as optional.	Refer main text of the Addendum.



རྒྱལ་ཁྲིམས་དང་འཕེལ་རྒྱུ་ལྷན་ཁག་ རྒྱུ་རྒྱུ་ལག་ རྒྱུ་རྒྱུ་ལག་གཞི་།  
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8	Appendix C: C-1.2	326	C-1.2 a) Immunity Test 5.1 ) Radiated Electromagnetic Field	Level 4 requirements are not for PTN products. Kindly Change it to level 3. or please make it optional
9	Appendix C: C-1.2	327	C-1.2 b) Emission Tests 1) LF Disturbance Voltages CCITT Recommendation P.53	This Test Facility is not available in Asia. Our products comply to this. Test procedure will be very expensive. It will increase the bid value. Request BPSO to consider our request and kindly make this test case as optional.
10	Appendix C: C-1.2	327	C-1.2 b) Emission Tests 2) Transient Disturbance Voltages	NABL accredited lab is not available in SAARC and it is not mandatory for PTN requirements. Request BPSO to make it optional.
<b>Appendix D: Technical Requirement Sheet</b>				





རྒྱལ་ཁབ་དང་འབྲེལ་བའི་ལྷན་ཁག་ རྒྱལ་ཁབ་དང་འབྲེལ་བའི་ལྷན་ཁག་གི་འཕུལ་གཞི།  
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1	Appendix D: 2E, 3B, 3E, 7F,8A,8B,11	329- 332	SI Nos. 2E. IPV 6 , 3B. L2 / L3 VPN 3E.MPLS FRR 7F.CLI interface 8A.CESoPSN 8B. Control: (V.35, X21, RS-232, V.24, V.11, V.36) , 8 C FXO/FXS, 2/4 E&M, OMNI, 11. 1588V2	<p>IPV 6 support will need additional license and increase the cost of system. For the given application this may not be required. Request BPSO to clarify.</p> <p>L3 Features - L2 / L3 VPN. MPLS FRR mainly not required as MPLS-TP being asked. CLI - Request BPSO to allow either CLI or GUI which is advanced one.</p> <p>CESoPSN mainly for nx64 this can be made optional.</p> <p>Legacy interface support like V.35 , X21 , V24 , V11 and V.36 , can be kept as optional as this will increase the cost and the latest devices will have either ethernet or E1 interfaces</p> <p>FXO/FXS , OMNI has almost become absolute and BPSO has asked for VOIP based services. IF FXO / FXS and OMNI supporting equipments have E1/ Ethernet uplink interfaces then we can provision the services.</p> <p>Synchronization - 1588V2 based synchronization is mainly used for mobility application . AS SyncE is asked in this tender then request BPSO to make it optional to reduce the price.</p>	Refer main text of the Addendum.
2	Appendix D: 9B, 9C	332	9) B) 8 Number of Input Binary Commands (Yes/No)  9) C) 8 Number of Output Binary Commands (Yes/No)"	We will offer Teleprotection with 8 Number of Input and 8 Number of Output Binary Commands (fixed configuration).	Refer main text of the Addendum.



རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཐོན་སྐྱོད་ལྷན་ཁག རྒྱལ་ཁུག་དཔལ་ལྷན་འབྲུག་གཞུང་།  
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3	Appendix D: 14	333	14) Power Supply -48VDC & 230VAC (Yes/No):	Please confirm the required power supply input voltage (i.e., dual 48VDC or dual 110VDC or 48VDC and 220VAC) for Distance and Differential Protection Equipment?	Refer main text of the Addendum.
<b>Appendix H: Substation Lines Connectivity</b>					
1	Appendix H: H-1	341-344	H-1. Substations and Transmission Lines Connectivity Detail	In general there are different make & types of relay installed in sites and some older relay will not be compatible to connect to Teleprotection so if BPSO can specify types of relay in this table will be useful. Where ever older version relay are there we believe BPSO will replace those.	Refer Appendix-J in the Addendum.
<b>Appendix I: Project Implementation Plan</b>					
1	Appendix I	346	Task Name	Request BPSO to modify Task Name time lines	There is no change to the tender stipulations.
<b>General</b>					
1				Will it be OK to support two systems – one for MPLS-TP and another one for Teleprotection? If yes, Teleprotection device can have E1 uplink to MPLS-TP? Or STM-1 Uplink to MPLS-TP?	Yes and any interface that can carry the TP signal adequately till the MPLS-TP.
2				In MPLS-TP device some places it is mentioned STM-4 Interface is required. In some places STM-1 CEM interface is required. We have STM-1 interface...Will it be OK?	Refer Appendix B, Figure B-2



རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཐོན་སྐྱེད་ལྷན་ཁག རྒྱལ་ཁུག་དཔལ་ལྷན་འབྲུག་གཞུང་།  
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3				Also please let us know since the SDH devices will be removed and there won't be need of STM-1 interface in the MPLS-TP, Can we provide MPLS-TP device without STM-1 CES interface?	No
4				In each of the C37.94 Module we provide 2xC37.94 Interface? Should we calculate Interface or Modules as per the List given in the Tender document?	Refer Section 2: 2.2.1
5				What is the type of C37.94 Interface to be considered? Single Mode 1310nm or Multimode 850nm? (we support LC interface)	
6				In most of the Locations STM-1 ADM is already there. STM-1 ADM cannot speak directly with MPLS-TP system on the last mile hence in front of STM-1 ADM we will have to use MPLS-TP device will that be OK?	Refer Appendix B: Fig B-2.  All most all the present STM ADM devices would be removed.
7				What about the RACKs in each Substation? (To use the existing one or provide a new one)	Refer Summary of Clarifications / Amendments, point 8.



རྒྱལ་ཁབ་དང་འཕེལ་རྒྱུ་ལྷན་ཁག་ རྒྱལ་ཁབ་དང་འཕེལ་རྒྱུ་ལྷན་ཁག་།  
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8				Power to the RACK is the responsibility of BPSO? Please confirm	At present all racks are supplied with power. If new rack is installed, power supply from the Bus bar needs to be extended and it will be under the contractor's scope.
9				What is the distance of the Teleprotection Fiber Cable should be considered for Differential?	Refer Section 2: 2.2.1
10				What is the distance of the Teleprotection Voltage Cable should be considered for Distance?	All the relay panels are housed inside the control room and the distance from relay to communication panel is roughly 50M. However, the contractor have to visit the site for actual distance calculation.
11				What about the Earthing cable distance?	



རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཐོན་སྐྱེད་ལྷན་ཁག རྒྱལ་ཁྲིམས་དང་རང་བཞིན་ཐོན་སྐྱེད་ལྷན་ཁག  
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12				How Many NMS Servers and Clients to be provisioned to manage the Primary Multiplexer & MPLS-TP Aggregation Multiplexer?	Refer Section 3: 3.1
13				EMI/EMC/Safety & TEC Certificate is enough for both systems? Or Type Test is required?	
14				If Type Test is not done then what are the important test cases that our systems should meet?	Refer Appendix C:C-1
15				From each Substation how many TP Interfaces (both differential and distance) should be connected to other Substation(s) information is missing in the tender document? This is required to design the Solution and arrive at the Hardware BoQ Requirement in each Substation level, Please provide the table for the same.	Refer Appendix –J: Relay Details and Table H-1: Substations and Transmission Lines Connectivity Detail