

**OFFICE OF THE BHUTAN POWER SYSTEM
OPERATOR (BPSO)**

**MINISTRY OF ECONOMIC AFFAIRS
ROYAL GOVERNMENT OF BHUTAN**

THIMPHU, BHUTAN



**TENDER DOCUMENT
FOR**

**“REVAMP OF SCADA AND
TELECOMMUNICATION SYSTEMS”**

(International competitive Bidding)

**VOLUME – III:
PRICE SCHEDULE**





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VOLUME – III: PRICE SCHEDULE

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PRICE SCHEDULE

Preamble:

1. The Contract is of turnkey nature and includes the definitive engineering and design that shall ultimately define actual quantities of work.
2. Where the unit rates have been asked in the price schedule, the quantity may vary to any extent and the unit rates will govern for the actual quantity of work and no price variation will be permitted. For items where quantity is mentioned as 'LOT' or 'SET', is deemed that the Contractor has included the all-inclusive price, which will be on lump sum basis, and the total payment for any LOT/SET item shall not exceed the amount quoted in the Bid. Contractor shall submit the list of items considered for the LOT/SET with breakup of prices in the Bid.
3. It shall be a condition of this contract that the all-inclusive rates quoted in Schedule of Rates / Prices shall not be varied for reasons of change in respective quantities.
4. Further, it shall also be an important condition of this contract that there shall not be any change in Unit Rates of items consequent to revision of labor rates, fuel rates, etc. by the Royal Government of Bhutan.
5. The supply unit rate against each item shall be an all-inclusive of ex-works supply, packing, forwarding charges, freight, transport, insurance, storage, etc. The Bidder is also required to indicate the ex-works price. The quoted unit price should be inclusive of Bhutan Sales Tax (BST), Customs Duties (CD), or any other taxes applicable under the law(s) of Royal Government of Bhutan.
6. The Contract Price shall be adjusted for the actual and correct quantities as executed and duly approved by the Employer on the basis of the proposed all inclusive unit rates to arrive at the final executed Contract Price.
7. Wherever no quantity is given against any item in the Schedule of prices, a rate shall nevertheless be entered against that item. This rate shall be used, in case the item is required to be used during actual execution of the contract.
8. All labor, supervision, inspection, testing, and commissioning costs should be covered. The charges/ expenses to be incurred on testing and commissioning of the entire system as a whole shall be included in the prices for individual activities.

The total price for each activity should cover all costs and expenses required for erection, testing, commissioning, and maintenance of works together with all risks, liabilities, contingencies, insurances, and obligations imposed and implied by the Contractor.

9. Bidder shall enter prices in the relevant schedule for the supply of specified spares to site. These prices will be considered during bid evaluation.
10. All items of work specified in the specifications have not been included in the price-schedule. The items of work not specifically called for in the Schedules are deemed to have been covered under the items called for, to leave the works complete, as per the





specifications. The rate quoted by the Contractor shall be deemed to be all inclusive, to cover the smaller items specified/required but not included in the Price-Schedule.

11. In addition to the points stipulated/highlighted in these clauses, all the conditions mentioned in the specifications, pertaining to measurement of quantities and unit rates of scheduled items shall apply.
12. It is deemed that the Bidder has understood the site conditions, environment, transport facilities etc. while preparing the price schedule and has adequately provided for them in its quoted prices. No claims of extra compensation will be payable for items and situations not foreseen and not incorporated by him in the schedules.
13. The wording under "Item Description" in the schedules is for subject matter guidance only. The Bidder's price shall include all works as specified in the specifications and drawings and all contractual obligations whether specifically mentioned or not.
14. The Bidder shall, if so desired by the Employer/Engineer, furnish at any stage of the bidding or Contract execution, break-up of prices considered for any or all items covered in various activities.





Revamp of SCADA/EMS Systems



LOT 1: REVAMP OF SCADA/EMS SYSTEMS

Sl. No.	Item Description	Unit	Quantity		Total Qty.	Ex-works (Nu)	Unit Price (Nu)	Total Price (Nu)	Remarks
			Main NLDC	B/up NLDC					
					1	2	3	4 = 1 x 3	
A	MAIN EQUIPMENT								
1	Application Software								
1.1	SCADA applications	Lot	1	1	2				
1.2	ICCP Communication	Lot	1	1	2				
1.3	Network Management System	Lot	1	1	2				
1.4	Historian System (ISR)	Lot	1	1	2				
1.5	EMS applications								
a)	- Network Topology	Lot	1	1	2				
b)	- State Estimation	Lot	1	1	2				
c)	- Optimal Power flow Analysis	Lot	1	1	2				
d)	- Bus Load Forecast (BLF)	Lot	1	1	2				
e)	- Contingency analysis	Lot	1	1	2				
f)	- Interchange Scheduling	Lot	1	1	2				
g)	- Hydro Scheduling	Lot	1	1	2				
h)	- Load Forecasting	Lot	1	1	2				
1.6	Web Server Application	Lot	1	1	2				
1.7	Dispatcher Training Simulator (DTS)	Lot	1	-	1				
1.8	Centralized Management Console applications	Lot	1	1	2				
1.9	Patch Management software	Lot	1	1	2				
1.10	Image Backup software	Lot	1	1	2				
1.11	Antivirus server software	Lot	1	1	2				
2	Computer System Hardware								
2.1	Servers								
a)	SCADA/EMS Server	Nos.	2	2	4				
b)	Historian System (ISR) Server	Nos.	2	2	4				
c)	ICCP Server	Nos.	2	2	4				
d)	Communication Front End (CFE) Sever	Nos.	2	2	4				
e)	NMS Server	Nos.	2	2	4				
f)	Web/Replica Data/ Antivirus/ Patch Management Server	Nos.	1	1	2				
g)	Centralized Management Console / Image Backup	Nos.	1	1	2				
h)	Dispatcher Training Simulator Server	Lot	1	-	1				
2.2	Dual TFT Monitor								
a)	Operator Workstation console	Lot	5	2	7				





Revamp of SCADA/EMS Systems



b)	Workstation for DTS	Lot	2	-	2				
2.3	Engineering Laptop	Nos.	3	1	4				
2.4	New Generation Firewall								
a)	External NGFW	Nos.	1	1	2				
b)	Internal NGFW	Nos.	2	2	4				
2.5	LAN switches								
a)	SCADA/EMS LAN	Nos.	1	1	2				
b)	Dual CFE LAN	Lot	1	1	2				
c)	Dual DMZ LAN	Lot	1	1	2				
d)	DTS LAN	Nos.	1	-	1				
2.6	Auxiliary Storage for Historian	Nos.	1	1	2				
2.7	NAS Box	Nos.	1	1	2				
2.8	Server Rack With IP based KVM Switch	Nos.	3	3	6				
2.9	Multifunction Laser Printer	Nos.	1	-	1				
3	Time and Frequency System displays								
3.1	Time & Frequency System (GPS based)	Lot	1	1	2				
3.2	Digital display for Day	Nos.	1	1	2				
3.3	Digital display for Time	Nos.	1	1	2				
3.4	Digital display for Frequency	Nos.	2	2	4				
4	ICCP Integration								
4.1	Integration with Indian NLDC	Lot	1	1	2				
4.2	Integration with DMS	Lot	1	1	2				
5	Furniture	Lot	1	1	2				
B	MISCELLANEOUS								
1	Heavy duty Air Conditioner	Lot	-	1	1				
2	Uninterruptible Power Supply (UPS)	Lot	1	1	2				
3	AC Distribution Board (ACDB)	Lot	-	1	1				
4	Civil works	Lot		1	1				
C	TRAINING FOR SCADA/EMS								
1	Computer System Software and Hardware	Lot		1	1				
2	Database & Display, Applications Software, and Historian	Lot		1	1				
3	NMS and Cyber Security	Lot		1	1				
4	Operator Applications Trainings	Lot		1	1				
5	Auxiliary Power Supply systems	Lot		1	1				
D	MANDATORY SPARES								
1	Servers including all main memory, auxiliary memory, interface cards complete one of each type	Lot		2	2				
2	LAN switch one of each type	Lot		2	2				
3	Router	Nos.		1	1				



Revamp of SCADA/EMS Systems



E		ANNUAL MAINTENANCE CONTRACT							
1	Year 1	Lot	1	1					
2	Year 2	Lot	1	1					
3	Year 3	Lot	1	1					
4	Year 4	Lot	1	1					
5	Year 5	Lot	1	1					
F		INSTALLATION, TESTING, AND COMMISSIONING							
1	Installation, Testing, and Commissioning of all the SCADA/EMS systems as required for operation of all the systems as per the technical specifications.	Lot	1	1	2				
2	Installation, Testing, and commissioning of Miscellaneous equipment including AC, ACDB, UPS, Civil Works, etc.	Lot	1	1					
Total Amount in Figure (Nu)									

Total Amount quoted in Ngultrum (Nu) in Figure

_____ Only.

Company Seal

Signature of the Bidder





REVAMP OF TELECOMMUNICATION SYSTEM



LOT 2: REVAMP OF TELECOMMUNICATION SYSTEM

Price Schedule for Communication Systems:

Sl. No.	Item Description	MPLS-TP					Tele-protection Interface					Total Price (Nu)
		Unit	Quantity	Ex-Works (Nu)	Unit Price (Nu)	Sub-Total (Nu)	Unit	Quantity	Ex-Works (Nu)	Unit Price (Nu)	Sub-Total (Nu)	
			1	2	3	4=1x3		5	6	7	8=5x7	9=4+8
A	Supply of Main Equipment											
1	National Load Dispatch Centre (NLDC)	Set	1				Set	-				
2	Chubachhu Substation	Set	1				Set	-				
3	Dechencholing	Set	1				Set	2				
4	Olakha Substation	Set	1				Set	2				
5	Gidagom Mini-hydrel	Set	1				Set	-				
6	Chumdo Station	Set	1				Set	4				
7	Watsa Substation	Set	1				Set	-				
8	Chhukha Hydropower Plant	Set	1				Set	6				
9	Gedu Substation	Set	1				Set	2				
10	Phuentsholing Substation	Set	1				Set	3				
11	Singhigaon Substation	Set	1				Set	2				
12	Malbase Substation	Set	1				Set	7				
13	Samtse	Set	1				Set	3				
14	Gomtu	Set	1				Set	2				
15	Tala Hydropower Plant	Set	1				Set	4				
16	Semtokha Substation	Set	1				Set	5				
17	Lobeysa Substation	Set	1				Set	2				
18	Basochhu Hydropower Plant	Set	1				Set	3				
19	Tsirang	Set	1				Set	3				
20	Dagachhu Hydropower Plant	Set	1				Set	-				
21	Jigmeling Substation	Set	1				Set	10				
22	Backup NLDC, Jigmeling	Set	1				Set	-				



REVAMP OF TELECOMMUNICATION SYSTEM



23	Mangdechhu (MHP)	Set	1				Set	5				
24	Gelephu Substation	Set	1				Set	2				
25	Yurmoo Substation	Set	1				Set	2				
26	Tintibi Substation	Set	1				Set	3				
27	Nganglam Substation	Set	1				Set	3				
28	Nangkhon Substation	Set	1				Set	3				
29	Kurichhu Hydropower Plant	Set	1				Set	2				
30	Kilikhar Substation	Set	1				Set	2				
31	Corlung Substation	Set	1				Set	2				
32	Kanglung Substation	Set	1				Set	2				
33	Phuntshothang Substation	Set	1				Set	2				
34	Motanga Substation	Set	1				Set	4				
35	Deothang Substation	Set	1				Set	2				
Total Amount quoted in Ngultrum for the Supply of Main Equipment (A) =												

Sl. No.	Item Description	Unit	Quantity	Ex-works (Nu)	Unit Price (Nu)	Total Price (Nu)	Remarks
			1	2	3	4=1x3	
B	Supply of Other Equipment						
I	NMS at NLDC						
1	Software	LOT	1				
2	Work Station / Server	LOT	2				
3	Craft Terminal	Nos.	2				
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				
III	Spares						
1	MPLS-TP	Set	3				
IV	Miscellaneous						
1	DC to DC Converter	Nos.	10				





REVAMP OF TELECOMMUNICATION SYSTEM



2	GPS	Set	1				
3	Panel/Cabinet	Nos.	5				
V	Annual Maintenance Contract						
1	Year 1	LOT	1				
2	Year 2	LOT	1				
3	Year 3	LOT	1				
VI	Training For Communication System						
1	Design, installation, and maintenance of Communication equipment	LOT	1				
2	Communication NMS	LOT	1				
3	Tele-protection	LOT	1				
VII	Installation, Testing and Commissioning						
1	Installation, Testing, and Commissioning of the Communication System	LOT	1				
Total Amount quoted in Ngultrum (Nu) for Other Equipment (B) =							

Total Amount quoted in Ngultrum (Nu) in Figure [C = A+B]

_____ Only.

Company Seal

Signature of the Bidder

