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Bhutan Power Corporation Limited
InfoComm Services Division
Thimphu : Bhutan



6/BPC/ICSD/2K9/ 38

April 27, 2009

Bidders,

.....

Reference : Bid no: BPC/ICSD/SDH-1/2K9- Supply, installation & commissioning of SDH equipment for establishing international gateway and nodal bandwidth distribution points.

Subject : Amendment 1 to the referred Tender

Dear Madam/Sir,

Please find enclosed the documents constituting the amendment for the referred tender. The amendment consists of the following :

- Main Text of the Addendum including revised price schedule
- ii. Annexure - Reply to Queries received from Bidders

This amendment will form part of the tender document. Kindly make sure that the changes indicated in the amendment are incorporated during bid submission.

Thanking you,

Yours sincerely,

(Chenchu T. Namgay)
Manager

AMENDMENT No. 1

NAME : SUPPLY, INSTALLATION & COMMISSIONING OF SDH EQUIPMENTS FOR ESTABLISHING INTERNATIONAL GATEWAY AND NODAL BANDWIDTH DISTRIBUTION POINTS

REFERENCE : BID NO. : BPC/ ICSD/SDH-1/2K9

A. PREAMBLE

This addendum is being issued pursuant to the queries raised by the Bidders till date and issues discussed in the Pre-bid Conference held at BPC Conference Hall, Thimphu on April 20, 2009; and other changes warranted by BPC. The replies to the queries raised by the Bidders are enclosed as *Annexure* to this Addendum. The respective clauses in the original Tender document stand amended to the extent indicated in this Addendum. In case of any discrepancy between the main text of this Addendum and Annexure to this Addendum (Replies to Bidders' Queries), the provisions of this Main Text govern.

The Bill of Quantity has been revised to incorporate extra details and has been enclosed .

B. CHANGES IN THE TENDER DOCUMENT

I. NOTICE INVITING BID & SECTION I – INSTRUCTIONS TO BIDDERS:

1. ***Deadline for submission of Bids:*** The deadline for submission of Bids stands extended till 1500 Hrs on **May 14, 2009**. The bids will be opened on the same day t 1530 Hrs.

II. SECTION II – CONDITIONS OF CONTRACT:

1. Add the following sub-clause 14.4 to Clause 14 – Payment

“14.4 The payment for the Goods and Services to be performed under the Contract shall be as per the following terms:

- (a) 70% of the payment related to supply of Equipment (i.e Price Schedule 1 of 2) on receipt of equipment at site;
- (b) 30% of the payment related to the supply of Equipment (i.e Price Schedule 1 of 2) along with 100% of the payment related to Installation, Testing and Commissioning (Price Schedule 2 of 2) on completion of all works and successful commissioning, after adjusting any amounts due including but not limited to Liquidated Damages, Performance Security etc. “

There is no change to the other provisions for any deductions as indicated in the Conditions of Contract from the payments due for any taxes and other purposes and the same stand unaltered.



III. SECTION III - TECHNICAL SPECIFICATIONS:

1. SDH network Diagram (Figure 1.1)

The SDH Network diagram (Figure 1.1) has been revised to bring more clarity on the connection details and BPC's own requirements. Actual site conditions will determine the final connectivity which is not expected to deviate too much from the amended SDH network diagram. The amended network diagram is given below:

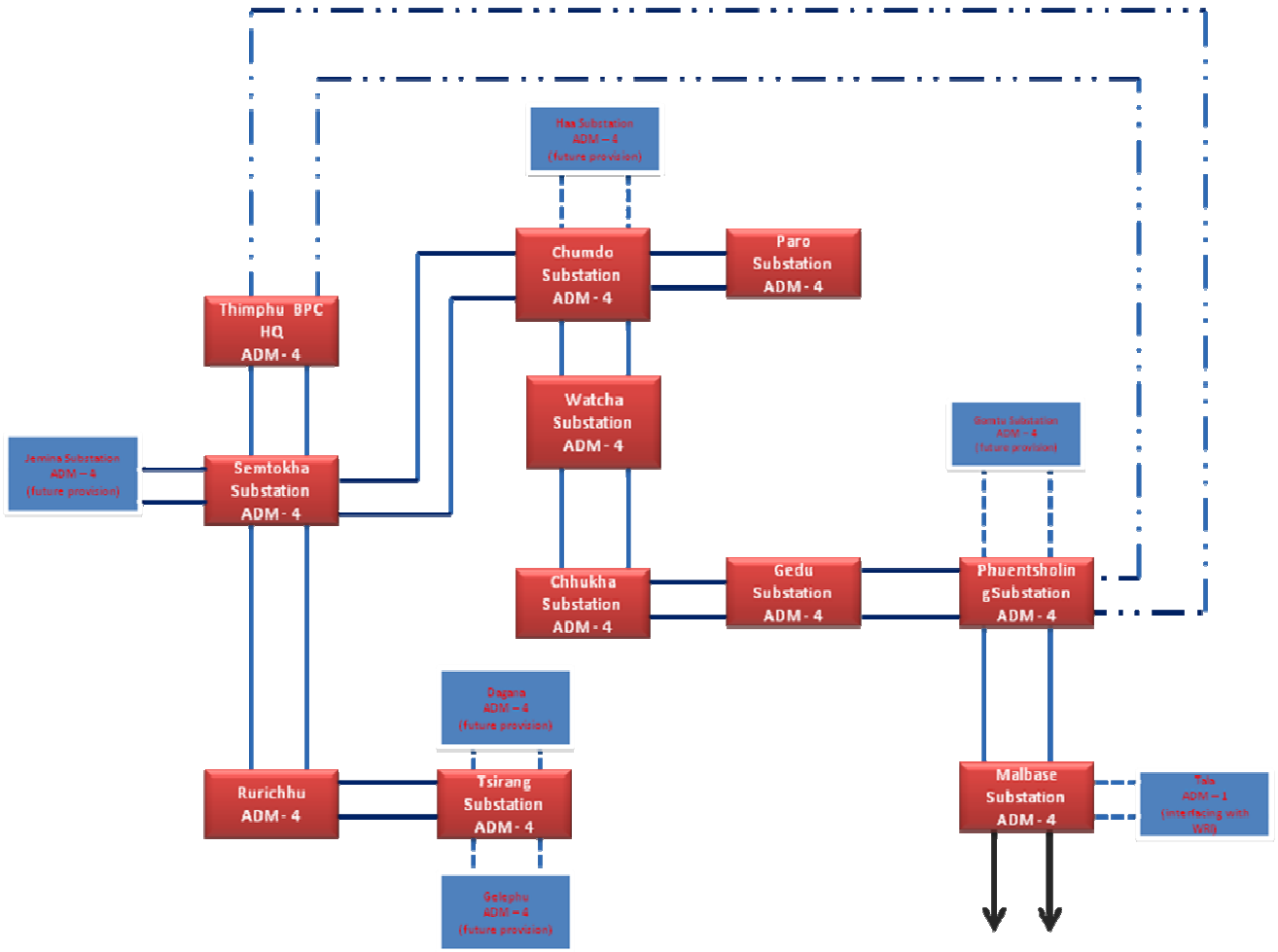


Figure 1.1 – SDH NETWORK DIAGRAM (Amended)

The revised SDH Network diagram shows the intended connectivity among various en-route substations between Phuentsholing and Thimphu and a separate direct connection between Phuentsholing and Thimphu. It may be noted that the transmission line route with OPGW (24-fibre) connectivity is same and the intent is to route 2 fibres via all intermediate substations, while 2 fibres are intended to be used for direct connection between Thimphu and Phuentsholing. Bidders are advised to note that for the direct interconnection, amplification if

any, due to long distance between these two terminal stations, shall be achieved by utilizing the equipment being supplied at one of the intermediary stations. Such arrangement will be part of the scope of this work and should not result in any additional cost implications to BPC.

2. Distance between various stations (Table 1.1) of Section III- Technical Specifications

The table stands amended as indicated below. It may be noted that the equipment being provided shall be suitable for extending the existing as well as proposed links (future provisions).

Sl.No.	Link	Distance (KM)	OPGW Specification
1.	Bhutan India Border to Siliguri	112	G. 652, DWSM
2.	Malbase to Bhutan India Border	28	G. 652, DWSM
3.	Malbase to Phuentsholing	12	G. 652, DWSM
4.	Phuentsholing to Gedu	17	G. 652, DWSM
5.	Gedu to Chhukha	21	G. 652, DWSM
6.	Chhukha to Watcha	23	G. 652, DWSM
7.	Watcha to Chumdo	16	G. 652, DWSM
8.	Chumdo to Paro	24	G. 652, DWSM
9.	Chumdo to Semtokha	20	G. 652, DWSM
10.	Semtokha to Rurichhu	47	G. 652, DWSM
11.	Rurichhu to Tsirang (Darjey)	49	G. 652, DWSM
12.	Semtokha to Thimphu BPC HQ	11	G. 652, DWSM
13.	Phuntsholing to Thimphu	105	G. 652, DWSM
Link distances for future provision stations			
1.	Chumdo to Haa	34	G. 652, DWSM
2.	Phuentsholing to Gomtu	27	G. 652, DWSM

3.	Tsirang (Darjey) to Dagana	20	G. 652, DWSM
4.	Tsirang (Darjey) to Gelephu	40	G. 652, DWSM
5.	Semtokha to Jemina	20	G. 652, DWSM
6.	Malbase to Tala	24	G. 652, DWSM

Table 1.1 Details of Fiber Connectivity (Amended)

3. Fractional E1 requirement at each substation

In addition to the requirement for each substation, the requirement in terms of fractional E1 at each substation is 16 nos. of V.24 and 16 nos. of V.35

Further, considering that the final objective of this specification is to be able to provide fractional E1's which would be achieved even through the use of additional Mux, provision of fractional E1 through additional Mux is also considered acceptable. However, in such a case, the additional Mux should be controllable and configurable through the same Network Management System. Further, the additional Mux will not be reflected as a separate item in the BoQ and the cost of the additional Mux will be deemed to have been included in the cost of the primary Mux being provided. All relevant clauses of the specifications like Clause 1.0 –d, 2.0-b, 2.0 c, 4.2 etc. stand amended to reflect this.

4. The Table under Clause 4.3 under description "Tributary, electrical interface" the specification "Per ITU-T G703- 75 ohm" stands amended as "Per ITU-T G703- 120 ohm" ..

5. Specification for Server, Workstation, Craft terminal, Laser Printer and Rack/cabinet required for STM equipment

i. In addition to the details provided for the server, workstation, craft terminal, laser printer and rack/cabinet the additional minimum requirements are as follows:

a. **Server Specification** : The minimum requirement is as tabulated below

1) Dual Socket, Dual-Core 1U Rack Server
2) Processor -2 X Quad-Core Intel® Xeon® Processor E5300 Series. X5355, 65nm, 8M L2, NA L3, 2.66 GHz, 1333 MHz FSB, XD, Intel(R) 64, QC, DBS, VT, FC-LGA6.
3) Memory -8GB 533MHz , Single Ranked DIMMs MEMORY
4) Operating System - Windows based, Integrated SAS/SATA RAID 5, PERC 5/i Integrated

5) Hard Disk -160GB, SATA, 3.5-inch, 7.2K RPM Hard Drive (FIRST HDD), 160GB, SATA, 3.5-inch, 7.2K RPM Hard Drive (SECOND HDD), 160GB, SAS, 3.5-inch, 7.2K RPM Hard Drive (THIRD HDD), 160GB, SASI, 3.5-inch, 7.2K RPM Hard Drive (FOURTH HDD) Rack Chassis with Static Rapid Rails

6) NIC-2x Intel® PRO 1000PT Dual Port Server Adapter, Gb NIC, Cu, PCIe x4

7) Preloaded latest Antivirus

8) Chipset- Intel 5000 X,

9) 17" LCD Rack Console Monitor with rack mini keyboard

b. **Work station Specification** : The minimum number of workstation has been amended from one to two. The minimum requirement is as tabulated below;

Branded Desktop Computer with following specification::
--

1) Intel® Core™ 2 Duo processor E8400 (3.00GHz 1333/3000MHz 4MB L2)

2) Mechanical Package Tower 4X5 Universal 280W AMT
--

3) USB Ports 4 in rear and 2 in front

4) PC2 6400 800MHz Memory

5) 4GB PC2-5300 SD/DDR RAM (2 DIMMs) , Integrated Video GMA3100 , 120GB Hard Disk Drive, 7200RPM Serial ATA

6) CD-RW, DVD Combo Drive SATA

7) 56KBPS Soft Modem US -WT FH

8) Integrated Intel Pro 1000T Gigabit

9) IEEE 1394 Adapter

10) Multimedia Keyboard

11) Optical Scroll Mouse

12) 19" LCD Monitor (same brand)

13) Preloaded Genuine Windows XP Professional (with original licensed CD)

14) Preloaded Microsoft Office 2007
15) Preloaded Norton Antivirus 2007
16) All Hardware Drivers in CD/DVD

c. **Craft Terminal Specification** : The minimum requirement is as tabulated below

Branded Laptop with following specification:
1) 32MB Vedio RAM Non Shareable
2) RAM 4 GB DDR2 upgradable to 8 GB
3) HardDisc 250GB 7400Mhz
4) 14.1" VGA LCD Screen
5) CD/DVD RW Combo
6) 4+USB Slots
7) Gigabit LAN Card
8) 56 KBPS V 9.2 internal modem
9) Bluetooth 2.0 with EDR support
10) Internal Speaker
11) carry bag
12) keyboard Stickers
13) power supply Adaptor
14) Preloaded Genuine Windows XP Professional SP3 (with original licensed CD)
15) Preloaded Microsoft Office 2007
16) Preloaded Norton Antivirus 2007

d. **Laser printer Specification** : The minimum requirement is as tabulated below

- i. reputed/branded make
- ii. with accessories, driver and printer cable
- iii. Printer Speed-35 ppm.
- iv. Duplex Printing,
- v. Network printing,
- vi. duty cycle-65000 pages per month.
- vii. resolution-1200x1200dpi.

- viii. 550MHz Processor,
- ix. 128MB RAM.
- x. Paper handling Input tray-Upto 500 Sheets and Output tray-250sheets.

e. **Rack/cabinet Specification** : The minimum requirement is as tabulated below ;

Specification for equipment cabinets

The equipment supplied should be mounted on suitable racks in closed enclosure cabinets. The racks and cabinets shall meet the following minimum requirements:

1.0 Equipment Rack

Equipment Racks provided for installation in environmentally controlled facilities, shall meet the following minimum requirements:

- (a) Equipment Sub Racks shall be steel/aluminum fabricated and finished on all surfaces. All metal and welds shall be thoroughly cleaned and sanded to obtain a smooth finish. All surfaces shall be treated for rust and primed to form a bond between metal and the finish coats of paint.
- (b) Equipment covers shall be provided for exposed components mounted in equipment sub Racks.
- (c) Dust and moisture protection shall meet or exceed IP20 standards.

2.0 Equipment Cabinet

- (a) Equipment cabinets shall be steel/ steel & Aluminum extrusion fabricated and finished on all surfaces. All metal and welds shall be thoroughly cleaned and sanded to obtain a smooth finish. All surfaces shall be treated for rust and primed to form a bond between metal and the finish coats of paint.
- (b) Equipment cabinets (enclosures) shall be designed free-standing but shall be mounted to the floor. Cabinets (enclosures) shall have secure fitting, lockable, full-length front doors for access to hardware and wiring. Equipment covers for exposed components mounted inside cabinets are not required unless specifically recommended.
- (c) All doors and removable panels shall be fitted with long life rubber beading. All panels shall be fabricated from minimum 2.0mm thickness steel sheet. However, for racks with load bearing Aluminum extrusion frame, door panels and side panels may be fabricated from minimum 1.6mm thickness steel sheet and the top & bottom panels shall be fabricated from minimum 2.0mm thickness steel sheet.



(d) Equipment cabinets (enclosures) shall be dust and moisture-proof as per IP41 specification, or better.

IV. SECTION IV- PRICE SCHEDULE

The price schedule has been revised and the revised price schedule are enclosed. These replace the earlier price schedules and forms part of the bidding document.

C. CONTENTS OF THIS ADDENDUM

Except for the above, all other terms and conditions of the original Tender documents govern. This Addendum consists of the following:

- (i) Main Text of the Addendum including revised price schedule
- (ii) Annexure - Reply to Queries received from Bidders

This Addendum along with the above enclosures forms part of the Tender Document.



Annexure - REPLY TO QUERIES RECEIVED FROM BIDDERS FOR SUPPLY, INSTALLATION & COMMISSIONING OF SDH EQUIPMENT FOR ESTABLISHING INTERNATIONAL GATEWAY AND NODAL BANDWIDTH DISTRIBUTION POINTS. Ref. : Bid No. : BPC/ICSD/SDH-1/2K9.

Sl. No.	Bidder's Enquiry	BPC's Responses	Remarks
Name of the Bidder: ECI Telecom			
1.	Requirement of equipment at Siliguri Site: Since this particular span/ link is over 140Kms, it would be essentially requiring amplifiers. To ensure smooth interworking and handover, it is highly recommended to plan for equipment at Siliguri site, as the amplifiers of different vendors may or may not inter-operate.	Interoperability is an important and key requirement for the equipment to be supplied. The repeater is estimated to be installed on the Indian side at about 70 kms from Siliguri (mid way).	
2.	Equipment at Semtokha site: The site has been excluded from the list of distances. Request you to confirm the requirement of equipment at Semtokha site and the pertaining distances.	A STM-4 upgradable to STM 16 is to be installed at Semtokha too. Refer revised Table 1.1 & Fig. 1.1of the amendment document for revised distances and network diagram.	
3.	Generalizing the requirement of STM-4 LH (L4.2) interfaces: It is suggested that all the aggregate STM4 interfaces being asked in the tender be of same type i.e. L4.2 to ensure uniformity at all sites for easier maintenance. The shorter links, may be supplied with attenuators, if required	Generalizing the requirement would mean usage of attenuators . We have specified the distance between stations. We will use both short haul and long haul interfaces as required by the distances between substations.	
4.	Fractional E1 requirement: It is requested to share the number and type of 64K interfaces required in the tender. Ex: 24 no. V.24 and 24 No.V.35 interfaces.	The requirement of fractional E1 in all the stations are as follows: a) V.24 – 16 Numbers b) V.35 – 16 Numbers	

5.	Laser Printer: It is requested to share the kind of laser printer required. For Ex: 300dpi/ 600dpi	Please refer Appendix F of this amendment document	
Name of the Bidder: Fiberhome Telecommunication Technologies Co. Ltd.			
1.	For Chumdo Substation, Watcha Substation, Chhukha Substation, we understand that there are 4 types of connection, please find attached "substation connection.doc", please clarify which type of connection.	Type 3 – Type 3 connectivity species watcha substation as an intermediary station between Chumdo and Chukha.	
2.	Please clarify the distance of the following station: Chumdo Substation to Chhukha Substation Thimphu BPC HQ to Semtokha Substation Semtokha Substation to Rurichhu Chumdo Substation to Semtokha Substation	Refer revised Table 1.1 & Fig. 1.1of the amendment document for revised distances and network diagram.	
3.	Please clarify the transmission distance of STM-1 required in Thimphu BPC HQ and Phuentsholing.	Refer revised Table 1.1 & Fig. 1.1of the amendment document for revised distances and network diagram.	
Name of the Bidder: Tejas network, India			
1.	Request for postponing the pre-bid meeting and the bid submission date.	Pre bid meeting cannot be postponed however the bid submission date will be on May 14, 2009(1500 hours). The bids will be opened on the same day at 1530 hours.	
2.	Please confirm whether required UPS (UPS , 1 phase (5 kVA output, 4 hours backup) is " ONLINE/OFFLINE " .	It will be online.	

3.	Our understanding is that there is no requirement for Fractional E1's. In the BOQ also we did not see any requirement for fractional E1's. We request you to remove this from the mandatory requirement	Fractional E1's is a requirement as per Power utility requirement. The request to remove fractional E1's cannot be entertained. However, we are open to being provided additional Multiplexer to cater to the fractional E1	
4.	Our understanding is that the STM-4 mux should support E1/DS-1,E3, FE, Fx,STM-1, GE interfaces. Please confirm.	In addition to your understanding, we have requested for Native IP and fractional E1.	
5.	Please confirm if the up gradability to STM-16 is mandatory?	The upgradability is mandatory.	
6.	Please confirm if 1+1 redundancy is mandatory for XCC and PSU modules?	1+1 redundant system is mandatory. This is to achieve a 100% online system. The 1+1 redundancy is only for critical cards and not all the cards in the system.	
7.	Our understanding is that the interconnection between the nodes (For ex Semtokha – Chumdo) is STM-4 connection. Please confirm.	STM-4 up-gradable to STM 16 connection is required.	
8.	Our understanding is that the E1 termination is 120 Ohm. Please confirm.	Kindly refer to Clause 4.3 of the technical specifications. The table describing the optical and electrical characteristics with the description “ Tributary, Electrical Interface – Per ITU-T G703, 75 ohm” stands amended. All E1 termination will be 120 ohm.	
9.	No more spec for GPS? If we provide OSA 5230 GPS synchronisation receiver – Rubidium in a - 19" sub-rack, 2U high, rear facing connectors , - 1 x E1/MHz aux input,- Rubidium RMO, $\pm 5e-11$ /month , - 8 x E1/2.048 MHz/10 MHz/1 PPS outputs , - 18-60 VDC power supply, - RS-232 local management , - Factory Acceptance Tests (FAT), - User Manual on CD-ROM , Drawing No 945.523.040 will it be OK?	The specification looks acceptable to us. However, the specifications for the GPS and the Rubidium clock provided must minimize data losses in the network and allow for reliable operation of the network.	

10.	<p>Your requirement DC Power Supply single phase, output -48 V (15Amp, 24 hours back-up) – 1No</p> <p>For the DC power plant you have mentioned 24Hr back up. Shall I understand that your total load is 15 A, to run 15A load you need a DC back up of 24Hrs . Shall I design Power plant on that basis ? or you need a power plant of 48V/15A (n+1). Will you provide battery ?</p>	<p>The DC power supply system includes the battery and the specification should meet the DC power supply requirement for the supplied system at the NOC.</p>	
Name of the Bidder: Telecommunications Consultants India Limited			
1.	<p>Kindly refer Section I, Clause 11 – Bid Prices and Section II, Clause 26, Taxes and Duties. Kindly intimate the applicable taxes and duties in Bhutan that have to be taken into account while preparing the bid.</p>	<p>A foreign Contractors Tax (FCT) of 3% and for Domestic Contractors a 2% tax is mandatory. Over and above that a Bhutan Sales Tax (BST) is applicable for goods originating in India and for goods originating from other countries, both Customs Duty (CD) and the Bhutan Sales tax becomes applicable. Either tax exemptions for BST and CD will be provided or else BST and CD will be refunded after proper documentations are submitted.</p>	
2.	<p>Kindly refer Section I, Clause 12 – Bid currencies ; Most of the equipments we intend to quote are from outside India. So we would like to quote these items in US dollars and get the payment of these items from M/s Bhutan Power Corporation in US dollars. Kindly clarify whether this will be acceptable to M/s Bhutan Power Corporation.</p>	<p>Goods from outside India will have to be supported by proper invoice and bill of lading. USD payment will only be made to third country banks.</p>	
3.	<p>Kindly refer Section II, Clause 14 – Payment : There is no mention about opening letter of credit for payments to be made to the supplier. Kindly confirm that no letter of credit will be opened by M/s Bhutan Power Corporation for effecting payments under this tender.</p>	<p>No letter of credit will be opened by BPC.</p>	



4.	Kindly refer Section III, Clause 4.7 : Please specify the following : STM -1 : Electrical or Optical is required for all stations. E1 : 75 ohm or 120 Ohm.	Kindly refer to Clause 4.3 of the technical specifications. The table describing the optical and electrical characteristics with the description “ Tributary, Electrical Interface – Per ITU-T G703, 75 ohm” stands amended. All E1 termination will be 120 ohm.	
5.	Kindly refer Section II, Clause 14 – Payment : Kindly clarify how the payments shall be effected i.e the percentage of payments to be released and at what stage.	Refer amendment document	
6.	Optical fiber lengths to and from Semtokha are not specified in the tender	Refer revised Table 1.1 & Fig. 1.1of the amendment document for revised distances and network diagram.	
7.	With reference to SDH network diagram (figure 1.1 of tender) and optical fiber length table (table 1.1) need more clarification on how Chumdo is connected to Thimphu.	Refer revised Table 1.1 & Fig. 1.1of the amendment document for revised distances and network diagram. . Thimphu is connected to Chumdo via Semtokha.	
8.	SDH network diagram shows Malbase is connected directly to Siliguri (India) whereas optical fiber length table shows Malbase is connected to Bhutan India Border need more clarification here.	The distance between Malbase and Siliguri is about 140 Kms and the distance from Malbase to the Bhutan India border is about 28 Kms, so 112 Kms of the distance between Siliguri and Malbase lies on the India side.	
9.	Kindly refer section 3, Technical specification clause no. 1.0 (d). Requirement of fractional E1 (Nx64) has been indicated. However this requirement is not confirmed in Clause 4.7. kindly confirm that fractional E1s are required by M/s BPC.	Fractional E1’s with the following interfaces are required per station : V 35 – 16 Nos. V 24 – 16 Nos.	

Name of the Bidder: InfoCare india			
1.	What CORE you are using for fiber optic?	BPC optical fiber network is generally a 24 core fiber network	
2.	What bandwidth you will be using?	The requirement is STM 4, upgradable to STM 16	
3.	How much MBPS line you will be using?	The requirement is STM 4, upgradable to STM 16	
4.	Where the place Mux installation?	The Multiplexers will be installed in BPC's existing Power Substations and BPC headquarter building.	
5.	How many points for LAN you will be using?	This is will be in line with the work station and server connectivity	
6.	How many license you want for operating system?	5 licenses are required for the NMS	
7.	What is the data transfer rate and data transfer speed?	The requirement is STM 4, upgradable to STM 16	
8.	What kind of patch cord you want to use for fiber optic?	This will be as per site requirement.	
9.	What is the specification for exciting fiber optic?	This has been specified in the Tender Document	
10.	What are the numbers of SDH you want to install along with this place?	This has been specified in the Tender Document	
11.	What are the applications you want to use?	The applications vary from International IP Bandwidth, IP lease circuit, SCADA applications etc.	
12.	Do you have any Doman server and do you want to connect with this Doman?	The NMS system is not expected to be connected to the Domain Server.	
13.	What type of terminal you want to use?	Various terminal/interfaces are required and have been specified in the tender document and the amendment.	

14.	What type of switch you want to use?	As per site requirement with some spares for future up gradations.	
15.	How many type of switch you want to use?	As per site requirement with some spares for future up gradations.	
16.	What type of security you want (is it hardware base/ software base)?	Licensed copies of both Antivirus and Spy wares are to be provided both for the server and the work stations	
17.	Who will provide the Local Area Network diagram?	CAT 6	
18.	Any network policy ?	This will be discussed and informed to the successful bidder	
Other issues that were raised and discussed during the Prebid meeting held on April 20, 2009			
1	Payment after supply of equipment and not after the commission of the equipment. (Referred clause : 14 Section II- Conditions of contract)	Refer amendment document	
2	Specifications for Server, work station and Craft terminal (referred clause : Clause 5.4 to Clause 5.7.3 of Section 3- Technical Specifications)	Refer amendment document	
3	Requirement of work stations (Referred Clause : 5.4, III b –Workstations- “ At least one work station shall be provided”	The requirement for workstations stands amended as 2 nos.	
4	No. of client users for the NMS	The minimum number of client users for the NMS is 5 nos.	
5	Is there a need to have DDF for 63 E1 in all the stations.	The DDF requirement will be as per the no of E1's required in each substation as specified in Clause 4.7 of Section 3- Technical Specifications.	
6	Specification of the Rack/cabinet required for the STM equipment.	Refer Appendix – G for the specification.	
7	Is Bank Guarantee from Bhunta Development Finance Corporation (BDFC) acceptable?	Bank Guarantee from BDFC is acceptable.	

REVISED PRICE SCHEDULES

Revised Price Schedule for supply of equipment (1 of 2) (Section IV B)

Sl. No.	Item Description	Unit	Pro. Qty.	Currency	Unit Price		Total FAS excl. BST/CD	Provision for BST/CD			Total FAS Incl. BST/CD
					Ex-works	FAS Including BST/CD		Rate BST	Rate CD	Value	
A	Telecom Equipment										
1	SDH Add/Drop MUX (STM-4) including all cards and accessories needed for the specified SDH/PDH tributary/synchronous interfaces for the following stations:										
i.	Malbase	Nos.	1								
ii.	Phuentsholing	Nos.	1								
iii.	Gedu	Nos.	1								
iv.	Chhukha	Nos.	1								
v.	Watcha	Nos.	1								
vi.	Chumdo	Nos.	1								
vii.	Paro	Nos.	1								
viii.	Semtokha	Nos.	1								
ix.	Rurichhu	Nos.	1								
x.	Dajey	Nos.	1								
xi.	Thimphu BPC HQ	Nos.	1								
2	DDF for E1										
i.	DDF for 10 E1	Nos.	3								



ii.	DDF for 20 E1	Nos.	3								
iii.	DDF for 30 E1	Nos.	3								
iv.	DDF for 40 E1	Nos.	1								
v.	DDF for 63 E1	Nos.	1								
3	Cabinet to house the SDH equipment	Nos.	11								
4	GPS & Rubidium clock	Nos.	2								
5	Spare cards for the complete setup for one location, including CPU, tributary, synchronous interfaces etc. (Note : break out price for individual cards should be furnished)	set	1								
B	Requirements at NOC										
1	NMS soft ware complete with five client user capability	Nos.	1								
2	Server for NMS	Nos.	1								
3	work stations	Nos.	2								
4	Craft Terminal	Nos.	2								
5	Laser Printer	Nos.	1								
6	DC Power Supply single phase, output -48 V (6 hours back-up)	Nos.	1								
7	UPS , 1 phase (5 kVA output, 4 hours backup)	Nos.	2								
Total											

Revised price Schedule for installation, testing and Commissioning (2 of 2)
(Section IV B)

Sl. No.	Item Description	Unit	Pro. Qty.	Currency	Unit Price	Amount
A	Telecom Equipment					
1	SDH Add/Drop MUX (STM-4) including all cards and accessories needed for the specified SDH/PDH tributary/synchronous interfaces.					
i.	Malbase	Nos.	1			
ii.	Phuentsholing	Nos.	1			
iii.	Gedu	Nos.	1			
iv.	Chhukha	Nos.	1			
v.	Watcha	Nos.	1			
vi.	Chumdo	Nos.	1			
vii.	Paro	Nos.	1			
viii.	Semtokha	Nos.	1			
ix.	Rurichhu	Nos.	1			
x.	Dajey	Nos.	1			
xi.	Thimphu BPC HQ	Nos.	1			
2	DDF for E1					
i.	DDF for 10 E1	Nos.	3			
ii.	DDF for 20 E1	Nos.	3			
iii.	DDF for 30 E1	Nos.	3			
iv.	DDF for 40 E1	Nos.	1			
v.	DDF for 63 E1	Nos.	1			

3	Cabinet to house the SDH equipment	Nos.	11			
4	GPS & Rubidium clock	Nos.	1			
B	Requirements at NOC					
1	NMS soft ware complete with five client user capability	Nos.	1			
2	Server for NMS	Nos.	1			
3	work stations	Nos.	2			
4	Craft Terminal	Nos.	2			
5	Laser Printer	Nos.	1			
6	DC Power Supply single phase, output -48 V (6 hours back-up)	Nos.	1			
7	UPS , 1 phase (4 hours backup)	Nos.	2			
Total						
Total in words.....						

