



This amendment shall be an integral part of the RFP, in case of conflict between the RFP and this amendment, the later shall apply”

Amendment

Sl. No.	Section no / Clause no / page no	Existing clause	Amended clause
1	RFP Page 12 Table 6	Sl. No. 13 total asset of Isolator count is 432	Read 342 instead of 432.
2	RFP Page 40 Table FRTU I/O list	MFT quantity Jaipur is 1700	MFT quantity for Jaipur is 1800
3	RFP Page 43 F) Auxiliary Power Supply, Sl. No-5	UPS with suitable rating running in parallel redundant mode*	UPS with 10kVA rating, set of two running in parallel mode
4	RFP Page 43 F) Auxiliary Power Supply, Sl. No-6	VRLA type Battery banks for above UPS for minimum 30 min backup duration (set included in Above)	VRLA type Battery banks for above UPS for minimum 1 hr backup duration (set included in Above)



Clarification

Sr. No:	Query	Clarification
1	Quantity of Spares	<p>It is clarified that the bidders are required to provide list of mandatory spares in the bid (Refer page 157 of RFP). It is clarified that at-least. 5% spares for each critical item are to be maintained throughout the project period including FMS irrespective of the consumption. The bidder in its bid will provide the list of critical items and list of mandatory spares.</p>
2	Submission of Type test reports, Entry tax, Bid submission date, Entry of statutory levies in Price table, PBG, Approved Banks for Security and PBG, Insurance as per INCOTERMS, Bid forms, Bidding with alternate makes of products.	<p>It is clarified that Only the SIAs empanelled by PFC at the time of bidding can bid this RFP and No new consortiums other than those who are specified in the empanelment by PFC can not bid.. Bidders shall submit their letter of empanelment along with the proposal.</p> <p>It is clarified that the Bid security and PBG may be issued from any Schedule bank with RBI</p> <p>It is clarified that manufacturer's authorization certificate as per Form F4 is mandatory for submission with bid., else the bid shall be considered as non-responsive</p> <p>Tax break up and any statutory levies shall be shown in a separate Annexure to the price proposal of Appendix C3. It is clarified that the bidder can modify the price table to add statutory levies column.</p> <p>It is clarified that the validity of Bid Security BG shall be 120 days</p> <p>It is clarified that as per amendment issue by PFC the extent of Performance Bank Guarantee is 15% of contract value.</p> <p>It is clarified that insurance of all items in vender account till acceptance of the items supplied. of the items supplied them.</p> <p>It is clarified that Network connectivity charge for all locations are to be quoted for 3 year (Refer Revised BoQ)</p>



4	Project manpower requirements	It is clarified that manpower has already given in Appendix J.
5	Location of control center, design of integration solution, existing radio network, I/O requirements, warranty scope and SLA, Replacement of existing faulty items, Data migration	<p>It is clarified that full responsibility of the integrated system shall be with the SIA.</p> <p>It is clarified that SLA, Warranty, FMS etc. shall be applicable for the entire system including the integration</p> <p>It is clarified that the existing control centre is at Chambal house and all SCADA equipments for Jaipur city shall be mandatory to shift to the new control room at Old Power house premises.</p>
6	Detailed information on the middleware for IT integration, data formats and BoQ breakup	<p>It is clarified that the integration with IT system shall be done by SIA as specified in the MTS by using suitable solution if any additional hardware and software is required for such integration, that shall be arrange by SIA at No-Cost to Discom. It is informed that Microsoft BizTalk server is being used by IT vender under RAPDRP as middleware.</p> <p>It is clarified that the contractor has to do verification of GIS and network model data provided by the ITIA</p>



7	Operational acceptance, Connectivity Charges, LD	<p>Bandwidth/Connectivity.</p> <p>1. Following type of Bandwidth and connectivity shall be given.</p> <table border="1" data-bbox="938 371 1856 662"> <tr> <td>For RTU</td> <td>MPLS/VPN</td> </tr> <tr> <td>For FRTU and FPI</td> <td>GPRS/CDMA</td> </tr> <tr> <td>For SLDC, ,IT Cell, DC &DR</td> <td>MPLS-VPN Network Connectivity Charges for 2Mbps</td> </tr> </table> <p>2. The bidder shall indicate the name of ISP in the bid.</p> <p>3. SIA will provide the data enabled SIM card along with the network connectivity for 3 year post commissioning.</p> <p>It is clarified that the bandwidth charges shall be paid directly to ISP as per the quoted price.</p> <p>It is clarified that the payment of Bandwidth charges commences from the date of acceptance of system .the requirement of bandwidth during phase of the execution shall be arranged by SIA at No-Cost to Discom.</p> <p>Delivery of item shall be as per site readiness. Suppliers are advised to manage their inventory as per the site readiness plan.</p> <p>For Site readiness, DISOM are in the phase of execution of Part –“ B” Scheme under RAPDRP, which including providing necessary SCADA interface and equipment line RMU, FPI Sectionlizer etc, the implementation of this scheme will be done simultaneously with SCADA. As SIA shall first execute the SCADA at 33KV sub-station.</p>	For RTU	MPLS/VPN	For FRTU and FPI	GPRS/CDMA	For SLDC, ,IT Cell, DC &DR	MPLS-VPN Network Connectivity Charges for 2Mbps
For RTU	MPLS/VPN							
For FRTU and FPI	GPRS/CDMA							
For SLDC, ,IT Cell, DC &DR	MPLS-VPN Network Connectivity Charges for 2Mbps							
8	DCPS requirement at both FRTU and RTU, Battery sizing, DC supply availability at substations	<p>It is clarified that Input AC power of required rating shall be provided by utility at all relevant locations.</p> <p>It is clarified that any additional item required for ensuring reliable performance of the unit can be proposed by</p>						



		<p>the bidder.</p> <p>DC supply at the substations is 110VDC. Normal 230VAC also shall be available.</p>
9	Server hardware, back up devices, Data exchange volume, Switches	<p>It is clarified that in all Servers, back up devices shall be supplied as per the BoQ in the tender and NAS/SCSI-SAS to be included in line item of ISR system as per the MTS.</p> <p>It is clarified that data exchange volume from control center to DR center shall be estimated by bidder based on the system proposed by them, meeting the requirements of the MTS.</p>
10	Anomalies in topology data, STLF methods	<p>DMS should have state estimation module which identifies the anomalies in network topology.</p> <p>DMS functionalities are limited to those listed in the MTS. For STLF, SIA can select any standard methods listed in MTS meeting functional and performance requirements.</p>
11	Warranty period, Severity level	<p>Warranty period shall be as per the SCC and GCC clauses and FMS terms.</p> <p>Definitions of availability and severity are defined in the RFP. Failure of RTU, DCPS shall be under Severity levels 1. Failure of LDMS is under Severity level 2.</p>
12	Manpower and scope	<p>MTS for FMS specifies the manpower deployment and scope clearly including the warranty.</p>
15	Optimizing the quantity, Quantity variations	<p>Present size of the system shall be as per the BoQ provided and ultimate system size shall be considered by doubling the BoQ and IT data exchanges.</p> <p>Any additional quantity required shall be supplied as per the clause in RFP.</p> <p>I/O list is indicative and data shall be used for sizing the system, actual quantity required shall be finalized after the site survey conducted by the successful bidder.</p>
16	Quantity, Mounting, Control command,	<p>It is clarified that the installation of CMR, HDR and MFT shall be as per the site requirement and payment shall</p>



	Adding operation indicator, unit price of CMR, Rating	<p>be made on the basis of actual consumption. RTU HDR & FRTU HDR counts include Trip and close command of equipments. For sizing of FRTU Digital Output module in BoQ presently we have considered additional digital control commands (DC) for the future requirements, however the HDR count is considered as per actual. If the site requires additional HDR, after site surveys the same have to consider by the SIA.</p> <p>It is clarified that double status shall be considered as two independent input signals from critical field equipment like breakers. DS quantity includes present & future controllable assets status (Open & close) in the substation including all feeders at the station and additionally bus coupler, incomers and transformer breaker as per the site.</p> <p>Operation indicator can be added to the CMR</p> <p>Unit prices are required for all BoQ items</p> <p>The rating specified is of 5A continuous rating.</p>
17	DC voltage/current transducer and Tap position transducer	It is clarified that SIA has to supply transducers if found required after the site survey.
19	Transducer-less solution, self powered type MFT	<p>It is clarified that bidder has to propose MFT with auxiliary power supply. Transducer less solution not acceptable.</p> <p>It is clarified that minimum quantity of MFTs is as per the BoQ, Any additional quantity required shall be determined by SIA in site survey for supplying.</p>
20	I/O list, Dummy breaker latching relay, Relay mounting, Communication ports, I/O estimation, connectivity and other inputs for sizing the FRTU.	<p>The I/O details are indicative and only module counts shall be selected for I/O estimation.</p> <p>All Digital Control commands listed in the I/O list include the Trip and Close and so no need of doubling it again. But all Double status points need to be doubled for counting the DIs.</p> <p>Dummy breaker latching relay is required for each RTU and FRTU, however the quantity is not currently included in the BoQ but will be procured under quantity variation clause. SIA has to conduct detailed study once</p>



		<p>order is awarded to decide the relay mounting requirements.</p> <p>It is clarified that SIA have to consider the FRTU modules indicated in IO list as minimum requirement and additional modules required shall be supplied if required after site survey.</p> <p>It is clarified that SIA has to supply AI modules in RTU for getting DC voltage/current/tap positions from the field.</p> <p>No. of Comm. modules shall be determined by bidder including 20% spares as specified in MTS and RFP.</p> <p>For all the FRTUs the module count listed in RFP shall be taken as guideline for sizing purpose.</p> <p>The installation of CMR, HDR and MFT shall be as per the site requirement and payment shall be made on the basis of actual consumption. Utility shall provide assistance to contractor for getting regulatory permissions/clearances and right of way approvals related to FRTU installations. Any statutory charges towards this can be reimbursed to the SIA.</p> <p>Cables and other accessories required for RTU and FRTU installation shall be determined by contractor in their site study.</p> <p>Analog input module in FRTU is presently considered as per MTS and will be used as per the RMU requirements.</p> <p>The FRTU shall be considered with 4 communication ports for local configuration, MFT communication, GPRS modem and FPI wherever required.</p>
21	MPLS VPN, FPI modem, security, broadband, routers and bandwidth and connectivity charges.	<p>It is clarified that connectivity between SCADA/DMS Control Center to Substations, SLDC, DR, IT DC and IT Cell shall be on MPLS VPN/MLLN as specified in the BoQ of RFP document. No redundancy considered for the communication links. Wherever fiber optic link is not feasible, copper or WiMAX can be used for the last mile connectivity. Bandwidths given in the RFP are minimum figures only, however actual link speeds required shall be calculated for each of the above links by SIA.</p> <p>It is clarified that contractor has to supply necessary routers for establishing the connectivity as per the BoQ. All the WAN routers shall be of same specification.</p>



		<p>It is clarified that any hardware or software required for the integration with SLDC shall be in the scope of SIA, however modification of SLDC software will be done by SLDC.</p> <p>It is clarified that price proposal for all network connectivity charges shall be submitted by the bidder in the price bid tables C3 matching to the BoQ, but for 3 years.</p> <p>Tripartite agreement shall be provided to the contractor in due course of time.</p>
22	UPS and DCPS	<p>UPS shall be provided at DR Center with a rating of minimum 10kVA and back up of 1 hour.</p> <p>DCPS is also to be supplied at DR center as per the MTS.</p> <p>DCPS shall be as per new MTS amendment.</p>
23	Details of RMUs and PFI	<p>The technical details of RMUs and FPI shall be given during the implementation stage.</p>
24	Remote VDU	<p>It is clarified that all PCs for VDU is to be supplied with table and chair (repute make), operating system & office suite, UPS of 2KVA</p>
25	LDMS	<p>It is clarified that all PCs for LDMS is to be supplied with table and chair (repute make), operating system & office suite, UPS of 600VA with minimum 30 minute back time.</p>
26	In MTS Section -2 Chapter- 5 (Sheet 3 of 17),	<p>It is clarified that * denote for Application server.</p>
29	In MTS Section -2 Chapter- 5 (Sheet 12 of 17)	<p>It is clarified that local area and device interface shall have minimum forty Eight (48) ports of 10/100/1000Mbps per LAN switch for SCADA/DMS LAN & (24)ports be considered for DMZ system, DTS & development system & DR system each,)</p>
30	MTS Section -9 (Sheet 1 of 12)	<p>It is clarified that DLP based Video Projection system with 2x3 Module configurations will consider as 1 set and each projector shall provide a minimum resolution of 1024X768 pixels per module. The rear projection screens shall be capable of displaying full resolution of the source.</p>



31	Software Licence	Supply of software Licence			
			Software for Control Centre	Nos of user with Full Functionality	
				Qty	Number of user full licences
		1	SCADA software	Lot	<p>All the Remote VDU station & control centre workstations shall have license for view, access and control the system .Remote web clients shall have necessary licenses and privileges to monitor and print the reports from their respective locations concurrently.</p>
		2	DMS software	Lot	<p>SIA will provide all licenses that will allow full functionality covering edit / addition / deletion facility to all users of all three discoms without the constraint of user specific licenses. There will be two types of clients – VPN and Web Client.</p> <p>The license of SCADA/DMS software shall be provided considering 100% expansion in between horizontally and vertically. It means if any new sub-station or electrical entity is installed or expanded, the license provide by the vender should meet this additional requirement at No-Cost.</p>
32		Additional clarification			
		<ol style="list-style-type: none"> 1. It is clarified that the bidder is the bid shall furnish unpriced BOM, which includes, make , model quantity etc for each item. 2. Bidder will use Format of BOM and price proposal form for filing in price bid 3. The quantities mentioned in BOM are indicative and for evaluation purpose, the bidder is required to quote compulsory for these quantities. However the payment will be made as per actual deployment. 			



		<p>4 For the quantities of the servers all items required SCADA centre & DR centre, the minimum quantity has been given in the BOM. The quantities of these item mentioned in are mandatory for bid evaluation. In case the bidder's design required for additional equipment beyond the mandatory quantity he may quote accordingly and the quantity mentioned by the bidder and the cost thereof will be used to evaluate his bid and issuance of work order. However, In case the bidders design required for lesser server from the mandatory quantity, he has to give the price for mandatory requirement only and the evaluation will be made as per the cost of mandatory quantity, however during final infrastructure design the lesser quantity will be finalized and will be used for payment purpose. It is clarified that in any case the payment of equipment for higher quantity than the bid quantity will not be admissible.</p> <p>5 Bidder will be responsible for payment of Taxes (including local entry taxes), duties, cess, charges etc, including taxes, duties, cess, charges etc, to be paid by the Supplier pre- or post-delivery. Such taxes, duties, cess, charges etc, if not explicitly mentioned in the following tables, but applicable under law, should be included in the Quote under "Any other levies" column.</p> <p>6 The Bidder will provide Tax rates assumed for the calculation at the time of proposal for each item in notes to respective table.</p> <p>7 Purchaser reserves the right to deduct and pay to the government authorities the taxes at applicable rates from the price payable to the supplier.</p> <p>8 The unit prices mentioned for various components should be the same for all Project Areas. In case of any discrepancy among unit prices of various Project Areas, the lowest unit price of equipment mentioned for any Project Area shall prevail for payment purpose.</p>
33	Payment Schedule	It is clarified 25% of hardware component of contract (as mention in RFP page 110 of 202) will be part of Sr. No B 2.0 Prorata basis on successful completion of end to end testing at site based on certification by the Utility



34	Milestones, Dispatch schedule	<p>The following milestones shall be applicable; the vender is required to adhere with the following schedule.</p> <ol style="list-style-type: none">1. Prodata basis successful completion of Factory Acceptance Tests (FAT as defined in MTS) and delivery of necessary software tapes to Utility as per Bill of Quantities for software installation based on certification by the utility.2. Only after completion of item No-1 above, the installation of H/W at SCADA control room will take place.3. Only after completion of item 2 & 3, integration of existing SCADA, if any will take place.4. Only after completion of item No-3, the installation of field equipment at 33kV or other location will be started.5. Training6. Final Testing.
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Enclosed: Softcopies of bidding forms F1 to F8 in editable formate are enclosed, however in case of any discrepancy between the pdf and editable formats; the pdf shall be taken as final.



09) Revised BoQ



A) SCADA/DMS control centre (BoQ)

Sl.No.	Specification	Unit	Towns under RAPDRP project area					Total	
			Make and Model to be quote by vendor	Jaipur	Kota	Jodhpur	Bikaner		Ajmer
A1	Server/ workstation Hardware								
1	SCADA/DMS server	No.		2	2	2	2	2	10
2	FEP server with interface switches	No.		2	2	2	2	2	10
3	ISR server	No.		2	2	2	2	2	10
4	NMS server	No.		2	2	2	2	2	10
5	DTS server	No.		1					1
6	Developmental server	No.		1	1	1	1	1	5
7	Communication Server	No.		2	2	2	2	2	10
8	Web/Directory server	No.		2	2	2	2	2	10
9	Workstation with dual TFT Monitors	No.		3	3	3	3	3	15
10	Remote VDUs with one TFT Monitors	No.		9	3	5	2	4	23
11	Developmental console with one TFT	No.		2	2	2	2	2	10
12	DTS/Workstation Console with dual TFTs	No.		2	0	0	0	0	2
13	DLP based Video Projection system with 2X3 Module configuration with each module at least 67" diagonal with common projector	Set		1	1	1	1	1	5
	Storage & Backup Devices								
14	External RAID Mass storage device (for 2 months online backup)	No.		1	1	1	1	1	5
15	External DAT drive (160/320GB)	No.		1	1	1	1	1	5
	Switches/Routers								



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

16	Layer II switch (SCADA/DMS LAN)	No.		2	2	2	2	2	10
17	Layer II switch (Development system LAN &DTS)	No.		2	1	1	1	1	6
18	Router one each for interfacing IT system , SCADA/DMS DR centre	No.		1	1	1	1	1	5
19	Router at remote VDU	No.		9	3	5	2	4	23
20	Firewall & network IPS	Nos.							
	Other Active devices								
21	GPS Time synchronisation system	Set		2	2	2	2	2	10
22	Time, day & date digital displays	Set		1	1	1	1	1	5
	Printers								
23	A3 Color inkjet printer	No		1	1	1	1	1	5
24	B/W Laser printer	No		1	1	1	1	1	5
25	Color Laser printer	No							
	Security system (DMZ)								
26	Web server with load balancing	No.		2	2	2	2	2	10
27	Mail server	No.							
28	Router	No.		2	2	2	2	2	10
29	Firewall & network IDS/IPS	No.		2	2	2	2	2	10
30	Layer II switch	No.		2	2	2	2	2	10
	Cabling System								
31	Cable, Jacks etc.	Lot		1	1	1	1	1	5
32	Any other hardware to meet functional /performance requirement of MTS	Lot							
A2	Mandatory Spares for Control Centre								
33	5% of A1	%							



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A3	Software for Control Centre								
34	SCADA software	Lot		1	1	1	1	1	5
35	ISR Software	Lot		1	1	1	1	1	5
36	DMS software	Lot		1	1	1	1	1	5
37	DTS software	Lot		1					
38	Developmental software	Lot		1	1	1	1	1	5
39	Network Management Software	Lot		1	1	1	1	1	5
40	WEB /Network security software(Incl in web server)	Lot							
41	RDBMS package (incl in ISR)	Lot							
42	GIS Adaptor/Engine for importing data from GIS system under IT system	Lot		1	1	1	1	1	5
43	Any other software to meet functional /performance requirement of MTS (OMS etc)	Lot							
A4	Network Charges								
44	Network Connectivity Charges for Link for 3 year post commissioning(MPLS-VPN)	MPLS/VPN for RTU							
		GPRS/CDMA for FRTU and FPI							



B) SCADA/DMS DR Centre

SL.No.	Specification	Unit	Towns under RAPDRP project						Total
			Make and Model to be quote by vendor	Jaipur	Kota	Jodhpur	Bikaner	Ajmer	
B1	DR server								
1	DR server	Nos				2		2	
2	Communication Server	Nos				2		2	
3	Workstation with one TFT Monitors	Nos				2		2	
B2	Storage & Backup Devices								
4	External storage device	Nos				2		2	
5	External DAT drive	Nos				2		2	
B3	Switches								
6	Layer II switch (DR LAN)	Nos				2		2	
	Routers								
7	Router for interfacing at SCADA DMS Centre	Nos				1		1	
B4	Printers								
8	Color inkjet printer	Nos				2		2	
9	B/w Laser printer	Nos				2		2	
10	Color laser printer	Nos				2		2	
B5	Cabling System								
11	Cable, Jacks etc.	Nos				1		1	
12	Any other hardware to meet functional /performance requirement of MTS	Nos							
B6	Mandatory spares for DR Centre	%							
13	5% of B1 to B5								



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

B7	Software for DR Centre								
14	RDBMS (Included in server)								



C) Remote terminal unit

SL.No.	Items Equipment	Unit	Towns under RAPDRP project						
			Make and Model to be quote by vendor	Jaipur	Kota	Jodhpur	Bikaner	Ajmer	Total
1	RTU comprising panels, racks, sub-racks, Power Supply modules, CPU analog / digital input & control output ,module as per specification interfacing equipment, required converters & all other required ,items/accessories including complete wiring for all modules for locations mentioned below	Nos		72	29	53	37	21	212
2	MFTs	Nos		1097	505	890	625	415	3532
3	CMRs	Nos		11813	4402	6918	4757	3206	31096
4	HDR	Nos		2040	973	1906	928	612	6459
5	Weather transducer - Wind speed	Nos		1	1	1	1	1	5
6	Weather transducer – rainfall	Nos		1	1	1	1	1	5
7	Weather transducer - Humidity	Nos		1	1	1	1	1	5
8	Weather transducer -Temperature	Nos		1	1	1	1	1	5
9	Weather transducer -Wind Direction	Nos		1	1	1	1	1	5
10	modem	Nos							
11	Router	Nos		72	29	53	37	21	212
12	Single TFT PC for LDMS with all accessories	Nos		72	29	53	37	21	212
13	1 B/W laser printer	Nos		72	29	53	37	21	212
14	Any other hardware to meet functional /performance requirement of MTS	Nos							
C2	Local Data Monitoring System (LDMS)								
15	Software for LDMS	Nos		72	29	53	37	21	212



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

16	Any other software to meet functional /performance requirement of MTS	Nos							
C3	TEST EQUIPMENTS for RTU								
17	RTU Database Configuration & Maintenance Software tool	Nos		1	1	1	1	1	5
18	Master Station cum RTU Simulator & Protocol analyser software tool	Nos		1	1	1	1	1	5
19	Laptop PC for above software tools along with interfacing hardware including Hub	Nos		4	2	3	2	2	13
C4	MANDATORY SPARES FOR RTU								
	5% of c1	Nos							
	Sub - Total (mandatory spare) -D4	Nos							
C5	Bandwidth Charges	Nos							
	Network Connectivity Charges for Primary Link (SCADA/DMS main control centre)	Nos							
	Sub - Total (bandwidth charges) -D5								

*CMRs and HDR are indicative and it may be considered as per requirement

**RTU I/O COUNT Jaipur Town**

Sl. No	STATION	SS	DS	DC	AI	CMR	HDR	MFT	COM MOD ULE (Serial)	DI MODUL E	DO MODUL E	AI MODU LE
1	JAWAHAR NAGAR	161	13	23	4	138	23	11	4	12	2	1
2	CHAMBAL	295	28	49	8	258	49	25	6	22	3	1
3	BHANKROTA	217	20	35	4	189	35	17	5	17	3	1
4	MANSORAWAR	146	11	19	4	124	19	8	3	11	2	1
5	NPH	276	26	45	4	241	45	20	5	21	2	1
6	VKIA	287	29	50	4	254	50	21	6	22	2	1
7	SMS STDM	150	13	23	4	130	23	10	3	11	2	1
8	KUNDA KI DHANI	162	13	23	4	138	23	10	3	12	2	1
9	PURANA GHAT	186	17	30	4	162	30	13	4	14	3	1
10	SIRSI	216	20	35	4	189	35	17	5	16	3	1
11	SANGANER	229	23	40	4	202	40	16	5	18	3	1
12	SITAPURA	153	13	23	4	132	23	10	3	12	2	1
13	VAISHALI NAGAR	175	16	28	4	152	28	12	4	13	2	1
14	OLD JHOTWARA(AMBA BARI)	213	20	35	4	186	35	17	5	16	2	1
15	DURGAPURA	195	16	28	6	167	28	18	5	15	2	1
16	BRAHMPURI S/S	241	21	37	6	208	37	20	5	18	3	1
17	MREC S/S	217	20	35	4	189	35	18	5	17	2	1
18	CHANDPOLE S/S	175	16	28	4	152	28	15	4	13	2	1
19	NAHRI KA NAKA	193	16	28	6	166	28	15	4	15	3	1
20	V.NAGAR S/S (Vidhyadhar Nagar)	219	18	31	6	188	31	22	6	16	3	1



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

21	RAMNIWAS BAGH (AjmeriGate)	212	17	30	6	181	30	20	5	16	3	1
22	NEW JHOTWARA	235	20	35	6	202	35	20	5	18	3	1
23	LALKOTHI	197	17	30	4	170	30	16	5	15	3	1
24	SMS STADIUM	167	14	24	4	144	24	13	4	13	3	1
25	SMS HOSPITAL	214	18	31	4	184	31	15	4	16	2	1
26	AGRA ROAD	218	19	33	6	189	33	20	5	16	3	1
27	RAMGANJ	154	13	23	4	133	23	15	4	12	3	1
28	KHASA KOTHI	197	17	30	4	170	30	15	4	15	2	1
29	JHALANA DUNGRI S/S	159	14	24	4	138	24	12	4	12	2	1
30	RAM MANDIR S/S	200	18	31	4	174	31	15	4	15	2	1
31	MALVIYA IND. AREA (MIA)	166	15	26	4	144	26	13	4	13	2	1
32	LAXMAN DOONGRI	168	15	26	4	146	26	15	4	13	2	1
33	VKIA ROAD NO. 14 S/S	277	23	40	8	238	40	25	6	21	3	1
34	SRIJI KI MORI	166	15	26	4	144	26	14	4	13	3	1
35	SITAPURA	207	17	30	6	177	30	18	5	16	3	1
36	VAISHALI	192	17	30	6	166	30	15	4	15	2	1
37	E.S.I. S/S	128	11	19	2	110	19	11	4	10	2	1
38	SHASHTRI NAGAR	165	14	24	4	142	24	13	4	13	2	1
39	MURTIKAR NAGAR	92	7	12	2	78	12	8	3	7	2	1
40	RAMBAGH CIRCLE	158	14	24	4	137	24	14	4	12	3	1
41	22 GODWN	111	9	16	2	95	16	8	3	9	2	1



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

42	TRIVENI NAGAR S/S	122	11	19	2	106	19	9	3	9	2	1
43	RPA	162	13	23	2	138	23	15	4	12	3	1
44	COLLECTRATE	110	9	16	2	94	16	8	3	8	3	1
45	JAMDOLI S/S(KESHAV VIDHYAPEETH)	92	7	12	2	78	12	8	3	7	3	1
46	LUNIYAWAS S/S	111	9	16	2	95	16	9	3	9	3	1
47	Pradhan Marg (Malviya Nagar)	81	7	12	2	70	12	6	3	6	3	1
48	SADWA	76	6	10	2	65	10	7	3	6	3	1
49	OLD VIDHAN SHABHA	79	6	10	2	67	10	8	3	6	2	1
50	MEERA MARG S/S	148	11	19	4	125	19	12	4	11	3	1
51	SEZ-I RICCO SITAPURA S/S	140	11	19	4	119	19	13	4	11	3	1
52	JAGATPURA NRI	104	7	12	2	87	12	8	3	8	2	1
53	MUHANA MANDIR	94	8	14	2	81	14	8	3	7	2	1
54	KAVERI PATH	90	7	12	2	77	12	7	3	7	2	1
55	SANGANER-II	95	7	12	2	80	12	8	3	7	2	1
56	SEZ-II SITAPURA S/S	90	7	12	2	77	12	7	3	7	2	1
57	MARUTI NAGAR S/S	168	14	24	4	144	24	14	4	13	3	1
58	ROAD NO. 9F VKIA	143	11	19	4	121	19	12	4	11	3	1
59	ROAD NO. 9A VKIA	144	11	19	4	122	19	12	4	11	3	1
60	KRISHI UPAJ MANDI (SIKAR ROAD)	91	7	12	2	77	12	7	3	7	2	1
61	KARDHANI	86	7	12	2	74	12	7	3	7	2	1
62	RIICO MANSAROVER	134	10	17	4	113	17	11	4	10	2	1



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

63	KUMBHA MARG	120	9	16	4	102	16	10	3	9	2	1
64	PATRAKAR COLONY	149	12	21	4	127	21	12	4	11	3	1
65	LOHA MANDI	78	5	9	2	65	9	5	2	6	2	1
66	SWEWAGE FARM(RAM NAGAR EXT)	95	7	12	2	83	12	7	3	7	2	1
67	NEW STATIONS-01	121	11	19	2	105	19	9	3	9	3	1
68	NEW STATIONS-02	121	11	19	2	105	19	9	3	9	3	1
69	NEW STATIONS-03	121	11	19	2	105	19	9	3	9	3	1
70	NEW STATIONS-04	121	11	19	2	105	19	9	3	9	3	1
71	NEW STATIONS-05	111	11	19	2	105	19	9	3	9	3	1
72	NEW STATIONS-06	111	11	17	2	105	17	9	3	9	3	1
	TOTAL	11397	978	1700	262	9844	1700	914	279	868	180	72
	TOTAL WITH 20% SPARE	13676	1174	2040	314	11813	2040	1097	335	1042	216	86

**RTU I/O COUNT :Kota Town**

SNO	STATION	SS	DS	DC	AI	CMR	HDR	MFT	COM Module	DI MODULE	DO MODULE	AI MODULE
1	RIMDC	259	19	53	6	252	53	28	7	19	4	1
2	DADABARI	270	22	61	6	266	61	31	8	20	5	1
3	TALWANDI	219	15	42	4	211	42	21	6	16	3	1
4	JP MARKET	123	8	22	4	118	22	13	4	9	2	1
5	BASANT VIHAR	148	12	33	4	146	33	17	5	11	3	1
6	RK PURAM	157	11	31	4	152	31	17	5	12	3	1
7	IPIA	151	10	28	4	145	28	16	5	11	2	1
8	INDIRA VIHAR	167	11	31	4	160	31	17	5	12	3	1
9	MBS	204	15	42	4	198	42	21	6	15	3	1
10	VALLABH NAGAR	132	9	25	4	127	25	18	5	10	2	1
11	BORKHEDA	182	13	36	4	176	36	20	5	13	3	1
12	INDUSTRIAL ESTATE	82	7	19	2	81	19	10	3	6	2	1
13	NAYAPURA	282	20	56	8	273	56	32	8	21	4	1
14	KUNHADI	125	9	25	4	121	25	15	4	9	2	1
15	JUNCTION	89	6	17	2	86	17	12	4	7	2	1
16	SAKATPURA	241	20	56	4	238	56	28	7	18	4	1
17	FUTURE S/S-1	128	11	31	2	127	31	15	4	10	3	1
18	FUTURE S/S-2	128	11	31	2	127	31	15	4	10	3	1
19	FUTURE S/S-3	128	11	31	2	127	31	15	4	10	3	1
20	FUTURE S/S-4	128	11	31	2	127	31	15	4	10	3	1
21	FUTURE S/S-5	128	11	31	2	127	31	15	4	10	3	1
22	FUTURE S/S-6	128	11	31	2	127	31	15	4	10	3	1
23	FUTURE S/S-7	128	11	31	2	127	31	15	4	10	3	1
24	FUTURE S/S-8	128	11	31	2	127	31	15	4	10	3	1



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

25	FUTURE S/S-9	128	11	31	2	127	31	15	4	10	3	1
26	FUTURE S/S-10	128	11	30	2	127	30	15	4	10	3	1
27	FUTURE S/S-11	128	11	29	2	127	29	13	4	10	3	1
28	FUTURE S/S-12	128	11	29	2	127	29	13	4	10	3	1
29	FUTURE S/S-13	128	11	29	2	128	29	13	4	10	3	1
	TOTAL	4495	350	973	94	4402	973	505	139	339	86	29
	TOTAL WITH 20% SPARE	5394	420	1168	113	5282	1168	606	167	407	104	35

RTU I/O COUNT Ajmer Town

SNO	STATION	SS	DS	DC	AI	CMR	HDR	MFT	COM MODULE	DI MODULE	DO MODULE	AI MODULE
1	CHANDRAVARDAI NAGAR	106	8	17	2	91	17	9	3	8	2	1
2	HAJARIBAG SUSTATION	186	13	27	6	158	27	22	6	14	3	1
3	HMT SUSTATION	133	9	19	4	113	19	19	5	10	2	1
4	JLN_SLD	139	10	21	4	119	21	16	5	10	2	1
5	LONGIYA	125	9	19	4	107	19	16	5	9	2	1
6	MAKHUPURA	75	6	13	2	65	13	11	4	6	2	1
7	MAYO COLLEGE	106	7	15	4	90	15	16	5	8	2	1
8	PANCHSHEEL	90	7	15	2	78	15	11	4	7	2	1
9	PARVAT PURA	179	14	30	6	155	30	20	5	13	3	1
10	POWER HOUSE HATI BHATA	159	13	27	4	138	27	19	5	12	3	1
11	REGIONAL COLLEGE	175	12	25	4	149	25	19	5	13	3	1
12	SHASHTRI NAGAR	120	9	19	4	103	19	17	5	9	2	1
13	VAISHALI NAGAR	150	13	27	4	131	27	19	5	11	3	1
14	SUBHASH NAGAR	170	14	30	4	148	30	17	5	13	3	1



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

15	MADAR	170	14	30	4	148	30	17	5	13	3	1
16	BADLIYA	170	14	30	4	148	30	17	5	13	3	1
17	JAIPUR ROAD	170	14	30	4	148	30	17	5	13	3	1
18	CRPF GC-2	170	14	29	4	148	29	17	5	13	3	1
19	PADAO	170	14	29	4	148	29	17	5	13	3	1
20	DHOLA BHATA	163	14	29	2	141	29	14	4	12	3	1
21	KUNDAN NAGAR	170	14	29	4	146	29	16	5	13	3	1
	TOTAL	3096	242	510	80	2672	510	346	101	233	55	21
	TOTAL WITH 20% SPARE	3715	290	612	96	3206	612	415	121	280	66	25

RTU I/O COUNT Jodhpur Town

SNO	STATION	SS	DS	DC	AI	CMR	HDR	MFT	COM MODUL E	DI MODUL E	DO MODUL E	AI MODUL E
1	MOTOR MERCHANT	89	7	23	2	86	23	12	4	7	2	1
2	SARDARPURA	128	9	30	4	122	30	17	5	10	2	1
3	UMAID HOSPITAL	123	11	36	2	122	36	18	5	10	3	1
4	M.G.HOSPITAL (MGH)	233	18	60	6	225	60	30	7	17	4	1
5	OLD POWER HOUSE(OPH)	124	10	33	2	121	33	17	5	9	3	1
6	ENGG. COLLEGE	296	25	83	6	290	83	38	9	22	6	1
7	CIRCUIT HOUSES	197	16	53	4	192	53	25	6	15	4	1
8	UMAID HARITAGE	111	9	30	2	108	30	14	4	9	2	1
9	RIKTIYA BHERUJI (RKB)	156	13	43	4	153	43	20	5	12	3	1
10	SOORSAGAR	84	6	20	4	80	20	11	4	6	2	1
11	PRATAP NAGAR	121	10	33	4	118	33	14	4	9	3	1
12	KAYLANA FILTER HOUSE	98	7	23	4	94	23	11	4	7	2	1
13	KAMLA NEHRU NAGAR	185	15	50	4	180	50	22	6	14	4	1
14	CHOPASNI HOUSING BOARD-I (CHB- 1)	154	12	40	6	149	40	20	5	12	3	1



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

15	CHOPASNI HOUSING BOARD-II (CHB- 2)	164	13	43	4	159	43	20	5	12	3	1
16	MEDICAL COLLEGE	177	14	46	4	172	46	21	6	13	3	1
17	BARKATULLAH STADIUM (BKT)	139	10	33	4	133	33	19	5	10	3	1
18	BORANADA –I	144	12	40	4	141	40	20	5	11	3	1
19	BORANADA –II	201	16	53	4	195	53	26	7	15	4	1
20	BASNI-I CANAL	153	12	40	4	148	40	19	5	12	3	1
21	BASNI-II PHASE	147	12	40	4	143	40	17	5	11	3	1
22	PAL	183	15	50	4	178	50	22	6	14	4	1
23	SANGARIA	111	8	27	4	106	27	15	4	8	2	1
24	KUDI BHAGTASNI (KBHB)	119	10	33	2	116	33	14	4	9	3	1
25	KATCHERY	221	17	56	4	214	56	26	7	16	4	1
26	FORT	190	14	46	6	183	46	24	6	14	3	1
27	BAGAR	73	5	17	2	70	17	9	3	6	2	1
28	GANESH GARH	75	5	17	2	71	17	9	3	6	2	1
29	NAGAURI GATE	136	12	40	2	134	40	17	5	10	3	1
30	LALSAGAR	123	9	30	4	118	30	15	4	9	2	1
31	MAGRA	92	7	23	2	89	23	11	4	7	2	1
32	NATIONAL LAW UNIVERSITY (N.L.U)	109	9	30	2	106	30	13	4	8	2	1
33	RIICO	101	8	27	2	98	27	13	4	8	2	1
34	BHADWASIYA	147	11	36	4	142	36	18	5	11	3	1
35	BJS COLONY	183	15	50	4	178	50	22	6	14	4	1
36	GIRDIKOT	122	9	30	4	117	30	18	5	9	2	1
37	MAGJI KI GHATI	90	7	23	2	87	23	12	4	7	2	1
38	MATA KA THAN	97	7	23	2	93	23	11	4	7	2	1
39	NEW S/S-01	114	10	33	2	112	33	14	4	9	3	1
40	NEW S/S-02	114	10	33	2	112	33	14	4	9	3	1
41	NEW S/S-03	114	10	33	2	112	33	14	4	9	3	1



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

42	NEW S/S-04	114	10	33	2	112	33	14	4	9	3	1
43	NEW S/S-05	114	10	33	2	112	33	14	4	9	3	1
44	NEW S/S-06	114	10	33	2	112	33	14	4	9	3	1
45	NEW S/S-07	114	10	33	2	112	33	14	4	9	3	1
46	NEW S/S-08	114	10	33	2	112	33	14	4	9	3	1
47	NEW S/S-09	114	10	33	2	113	33	14	4	9	3	1
48	NEW S/S-10	114	10	33	2	113	33	14	4	9	3	1
49	NEW S/S-11	114	10	33	2	113	33	14	4	9	3	1
50	NEW S/S-12	114	10	33	2	113	33	14	4	9	3	1
51	NEW S/S-13	114	10	33	2	113	33	14	4	9	3	1
52	NEW S/S-14	114	10	33	2	113	33	14	4	9	3	1
53	NEW S/S-15	114	10	33	2	113	33	14	4	9	3	1
	TOTAL	7106	575	1905	164	6918	1905	890	249	541	154	53
	TOTAL WITH 20% SPARE	8527	690	2286	197	8302	2286	1068	299	649	185	64

RTU I/O COUNT : Bikaner Town

SNO	STATION	SS	DS	DC	AI	CMR	HDR	MFT	COM MODULE	DI MODULE	DO MODULE	AI MODULE
1	MOHTA SARYA	77	5	15	2	86	15	12	4	6	2	1
2	CHETANAND	96	7	21	2	110	21	15	4	7	2	1
3	PAWAN PURI	109	8	24	2	126	24	19	5	8	2	1
4	PBM HOSPITAL	119	8	24	4	132	24	18	5	9	2	1
5	66KV GSS	186	15	45	4	216	45	26	7	14	3	1
6	TILAK NAGAR	133	10	30	2	155	30	22	6	10	2	1
7	SHIV BARI	96	7	21	2	110	21	14	4	7	2	1



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

8	UDDASAR	80	6	18	2	92	18	12	4	6	2	1
9	RANI BAZAR(I) OLD	128	9	27	4	144	27	18	5	10	2	1
10	RANI BAZAR(II) NEW	81	6	18	2	93	18	11	4	6	2	1
11	JAILWELL	109	8	24	4	122	24	16	5	8	2	1
12	SATTELITE	107	7	21	4	118	21	14	4	8	2	1
13	MAIN S/S	163	13	39	4	188	39	24	6	12	3	1
14	STADIUM	96	7	21	2	110	21	15	4	7	2	1
15	URMUL DAIRY	182	14	42	4	210	42	27	7	14	3	1
16	PUBLIC PARK	65	4	12	2	72	12	10	3	5	2	1
17	131.NO.KOTHI	86	6	18	2	98	18	12	4	7	2	1
18	BEECHWALL	112	9	27	2	131	27	19	5	9	2	1
19	FILTER PLANT	61	4	12	2	68	12	10	3	5	2	1
20	KHARA	122	9	27	4	137	27	18	5	9	2	1
21	GAUSHALA	212	15	45	6	239	45	30	7	16	3	1
22	M.P.NAGAR	97	7	21	2	111	21	15	4	7	2	1
23	PUGAL ROAD 132KV GSS	83	6	18	2	95	18	12	4	6	2	1
24	BHINASAR	141	10	30	4	159	30	22	6	11	2	1
25	VYAPAR NAGAR	95	7	21	2	109	21	14	4	7	2	1
26	KARNI INDUSTRIAL AREA	98	7	21	2	112	21	15	4	7	2	1
27	SAGAR S/S	80	6	18	2	92	18	11	4	6	2	1
28	JOHR-BEED	113	9	27	2	132	27	18	5	9	2	1
29	MURALIDHER VYAS COLONY	113	9	27	2	132	27	18	5	9	2	1
30	BIKANER UNIVERSITY	113	9	27	2	132	27	18	5	9	2	1
31	SONAGIREI	113	9	27	2	132	27	18	5	9	2	1
32	PATEL NAGAR	113	9	27	2	132	27	17	5	9	2	1
33	FCI GODWON	113	9	27	2	132	27	17	5	9	2	1
34	RAMPURA BASTI	113	9	27	2	132	27	17	5	9	2	1
35	GOGA GATE	113	9	27	2	132	27	17	5	9	2	1



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

36	RAMPURIA	113	9	26	2	133	26	17	5	9	2	1
37	FILLTER PLANT-2	113	9	26	2	133	26	17	5	9	2	1
	TOTAL	4144	310	928	96	4757	928	625	177	317	78	37
	Total with 20% Spare	4973	372	1114	115	5708	1114	750	212	380	94	44

Note: - SS : Single status input, DS : Double status input for CBs, DC : Digital Control Output (Trip & Close)/Raise /lower CMR : Contact Multiplying Relay, HDR : Heavy Duty Relay, METER : Energy meter, CM: Communication Module , DI : Digital input , DO : Digital Output AI: Analog module

Notes:

1. CMRs shall be mounted in the existing C&R panels. Wherever the space is not available in the existing panels the same shall be mounted in the RTU panels. Heavy Duty Relays shall be provided for Digital outputs for CBs and shall be mounted in the RTU panels itself.
2. MFT provide data that is to be acquired by RTU on Modbus/or IEC protocol for Voltage (phase to phase and phase to neutral), Current (phase and neutral), Active Power, Reactive Power, Apparent Power, Power Factor, Frequency, active energy (import & export), reactive energy (import & export) etc.
3. The RTU shall be equipped for the above specified I/O (analog input MFT), digital input & digital output) point points, which includes 20 % spare for future use. These 20 % spare points shall be terminated on terminal blocks in RTU panel.
4. All protection relay/Alarm points & CBs shall be considered for SOE.
5. Point counts include three alarms per station for auxiliary system and fire, which shall be interfaced to RTU.
6. In order to estimate module count 16 digital input(DI)/Module,16 digital output(DO) points/module,8 analog input (AI)/module is considered, however bidder can proportionally calculate a modules requirement based on their hardware proposed and model technical specification.
7. Com module given I/O list is indicative and it shall cover only for the serial ports required for the MFTs and Ethernet port shall be considered as per MTS
8. In order to estimate com module requirement, it is assumed that 1 com module consist only 1 serial port, however, bidder can proportionally calculate their module requirement based on hardware suggested , no.of ports per module and Model technical specification.
9. The I/O details are indicative and only module counts shall be selected for I/O estimation.



D) Feeder Remote terminal Unit(FRTU)

		Towns under RAPDRP project area							
Item	Unit	Make and Model to be quote by vendor model	Jaipur	Kota	Jodhpur	Bikaner	Ajmer	Total	
D1	FRTUs								
	Mini pole mounted FRTU base equipment along with enclosure suitable to work in open environment (Adequate protection from water & dust) , racks, sub-racks, Power Supply modules with power backup , I/o modules, CPU, interfacing equipment, required converters & all other required items/accessories including complete wiring for all modules for locations mentioned BELOW	Set	1700	600	883	629	521	4333	
	MFTs		2040	720	1060	756	626	5202	
	CMRs		11520	3960	4069	2965	2587	25101	
	HDR		13560	3240	3536	2546	2161	25043	
	Modem								
	Any other ITEM to meet functional /performance requirement of MTS								
D2	TEST EQUIPMENTS for FRTU								
	FRTU Database Configuration & Maintenance Software tool		1	1	1	1	1	5	



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

	Master Station cum RTU Simulator & Protocol analyzer software tool			1	1	1	1	1	5
	Laptop PC for above software tools along with interfacing hardware including Hub			1	2	3	1	1	8
D3	MANDATORY SPARES FOR FRTU	%		5	5	5	5	5	5
D4	Bandwidth Charges								0
	Network Connectivity Charges for Primary Link (SCADA/DMS main control centre)								
	5 % MANDATORY SPARE MAY BE CONSIDERED								

*CMRs and HDR are indicative and it may be considered as per requirement

FRTU IO List

DISCOM	Town Name	Type of equipment	Locations	SS	DS	DC	AI	CMR	HDR	MFT	COM MODULE	DI MODULE	DO MODULE	AI MODULE
JVVNL	Jaipur	RMU	1500	28800	10800	21600	5400	11520	13560	1800	6000	3000	1500	1500
		Sectional izer	200	1920	480	960	480			240	800	400	200	200
	Kota	RMU	300	5760	2160	4320	1080	3960	3240	360	1200	600	300	300
		Sectional izer	300	2880	720	1080	360			360	1200	600	300	300
JdVNNL	Jodhpur	RMU	148	2842	1066	2132	533	4069	3536	178	592	296	148	148
		Sectional izer	735	7056	1764	2646	882			882	2940	1470	735	735
	Bikaner	RMU	116	2228	1114	2088	557	2965	2546	140	464	232	116	116
		Sectional izer	513	4925	1232	1847	616			616	2052	1026	513	513
AVVNL	Ajmer	RMU	118	2266	850	1700	425	2587	2161	142	472	236	118	118
		Sectional izer	403	3869	968	1451	484			484	1612	806	403	403

Notes

- Includes 20% spare capacity in the given I/O list
- 16 DI,16 DO,8 AI is used for sizing purpose of modules, bidder can proportionally calculate actual requirement based on their hardware proposed and Model technical specification
- In order to estimate Com module requirement, it is assumed that 1 com module consist only 1port, however, bidder can proportionally calculate their module requirement based on ports required , no.of ports per module and Model technical specification.



E) Communication Equipments

E2) Communication system - VPN (MLLN/ MPLS)

Sl.No	Item	Unit	R-APDRP Project Area					Total
			Jaipur	Kota	Jodhpur	Bikaner	Ajmer	
1	MPLS Network Connectivity Charges for 2Mbps for internet Link	Nos.	1	1	1	1	1	5
2	MPLS-VPN Network Connectivity Charges Control centre (SIA has to calculate band width)	Nos	1	1	1	1	1	5
3	MPLS-VPN Network Connectivity Charges for 2Mbps (SLDC, ,IT Cell, DC &DR)	Nos	76	33	61	41	25	236
4	Network connectivity charges for FRTUs &FPIs on 3G/CDMA/GPRS	Nos	3500	2400	2836	1802	1542	12080



E4) Wireless communication modems

		R-APDRP Project Area							
		Unit	Make and Model to be quote by vendor	Jaipur	Kota	Jodhpur	Bikaner	Ajmer	Total
E4A	Item:RMU,Sectionalizer& FPI Modems								
1	GPRS	Nos		3500	2400	2836	1802	1542	12080
2	CDMA								
3	EDGE								
4	3G								



F) Auxiliary Power supply

	Item	Unit	Make and Model to be quote by vendor	Jaipur	Kota	Jodhpur	Bikaner	Ajmer	Total
F1	Main Equipments - Control centre								
1	UPS with suitable rating running in parallel redundant mode* (20 KVA)	Set of two		1	1	1	1	1	5
2	VRLA type Battery banks for above UPS for minimum 1 hr.backup duration (set included in Above)	set							
3	DC Power Supply (DCPS) system based on SMPS (for 20 A load plus charging current@10% capacity)	Set		1	1	1	1	1	5
4	Battery bank for above DCPS (VRLA Type) for minimum 4 hrs backup (Set included in above)	Set							
F2	Main Equipments - DR Centre								
	Main Equipments								
5	UPS with suitable rating running in parallel redundant mode* (10KVA)	Set of two				1			1
6	VRLA type Battery banks for above UPS for minimum 1 hour backup. backup duration (set included in Above)	Set							
7	DC Power Supply (DCPS) system based on SMPS (for 20 A load plus charging current@10% capacity)								
8	Battery bank for above DCPS (VRLA Type) for minimum 4 hrs backup								
F3	Mandatory Spares for UPS	%		5	5	5	5	5	5
F4	Mandatory Spares for DCPS	%		5	5	5	5	5	5
F5	For RTU / Data Concentrator / Communication Eqpts.								
9	DC Power Supply (DCPS) system based on SMPS								
10	Battery bank for above DCPS (VRLA Type) for minimum 4 hrs backup			76	33	61	41	25	236
F6	For FRTU								
11	48V DC Power Supply (DCPS) system based on SMPS			1700	600	883	629	521	4333



Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

12	Battery bank for above DCPS (VRLA Type) for minimum 4 hrs backup								
F7	Remote VDU Locations								
13	UPS (2 kVA)	No		9	3	5	2	4	23

G) Training

Sr. No	Description	Duration in days	No. Of Trainees
A.	Operator's Training		
1	Operator for SCADA/DMS Control Centre	5	1 Per workstation console/ shift at control centre
2	Instructor for DTS	10	3
B.	Maintenance Training		
1	Computer Hardware & System Software	10	2
2	Application Software (SCADA/DMS)	10	2
3	RTU & FRTU	5	5
4	Database & display development	5	2
6	Auxiliary Power Supply	3	2
7	Communication System including NMS	5	2

Note: Minimum training requirement are given in G, however the no.of days may change as per actual requirement

Facility maintenance Services (FMS)

S.No.	Description	Duration
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Amendments and Clarification to TN37 Tender for Appointment of SCADA/DMS Implementation Agency by Rajasthan DISCOMs

1	FMS charges for SCADA/DMS system (maintaining overall system availability as per TS)	Five Year
2	FMS charges for SCADA/DMS system (maintaining availability individual hardware & non – critical functions as per TS)	Five Year
3	Total FMS charges	Five Year