REC Power Distribution Company Limited	

Notice Inviting Tender

(Tender invited through e-Tendering mode only)

For

Rate Contract for Routers, Switches and Network Cabling for IT Implementation at Goa Electricity Department

No. RECPDCL/TECH/NETWORKING-GED/e-Tender/2014-15/2225 Dated: 26.02.2015

REC Power Distribution Company Limited
(A wholly owned subsidiary of REC, a *'Navratna CPSE'*
Under the Ministry of Power, Govt of India)
Corporate office
1016-1023, Devika Tower, Nehru Place,
New Delhi-110019
Telefax : 011-44128768
Website : www.recpdcl.in

Description of task, Pre-qualifying criteria, e-tender submission format and procedure is available on RECPDCL website (www.recpdcl.in), REC website (www.recindia.com), Central Publication Portal (www.eprocure.gov.in)

Important Dates for E- Tendering mode	
Date of Release of NIT	**26.02.2015**
Last date for queries / seeking clarification	**08.03.2015 at 1800 Hours**
Pre Bid Meeting	**09.03.2015 at 1100 Hours**
Last date of submission of Tender	**18.03.2015 at 1500 Hours**
Date of Opening of Technical bid	**18.03.2015 at 1600 Hours**
Date of Opening of Financial bid	**To be intimated later**

Note:

Online registration shall be done on e-tendering website i.e. www.tenderwizard.com/REC & in general, activation of registration may takes 24 hours subject to the submission of all requisite documents required in the process.

-Sd-

(S.C. Garg)
Addl. C.E. O.

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REC Power Distribution Company Limited	

SECTION-I

TENDER INFORMATION

Name of the assignment:

Rate Contract for Network Cabling, Locational Routers and Switches for IT Implementation at Goa Electricity Department

Important information

S. No.	Event	Information to the agencies
1	Date of Release of NIT	**26.02.2015**
2	Last date for queries / seeking clarification	**08.03.2015 at 1800 Hours**
3	Pre Bid Meeting	**09.03.2015 at 1100 Hours**
4	Last date of submission of Tender	**18.03.2015 at 1500 Hours**
5	Date of Opening of Technical bid	**18.03.2015 at 1600 Hours**
6	Date of Opening of Financial bid	**To be intimated later**
7	Pre- Bid Meeting Address	REC Power Distribution Company Limited, 1016-1023, 10th Floor, Devika Tower, Nehru Place, New Delhi- 110019, India Telefax : 011-4128768,44128760/67
8	Tender Document	The details can be downloaded free of cost from the websites www.recpdcl.in (or) portal.recpdcl.in (or) www.recindia.com (or) www.eprocure.gov.in (or) www.tenderwizard.com/REC
9	EMD #	**Rs. 5,20,000/-**
10	Address for Bid submission	**Shri. Subhash Chandra Garg,** Addl. Chief Executive Officer, REC Power Distribution Company Limited, 1016-1023, 10th Floor, Devika Tower, Nehru Place New Delhi- 110019, India. Telefax : 011-4128768,44128760/67 Email- recpdcl@rediffmail.com/recpdcl.goa@gmail.com
11	Contact Person	**Shri. Sunil Bisht ,** Assistant Manager (Technical) REC Power Distribution Company Limited (RECPDCL) Phone:011-44128760; Fax:011-44128768 Email-recpdcl@rediffmail.com/ recpdcl.goa@gmail.com

 # The EMD (Earliest Money Deposit) is to be submitted by all the participating bidders in the form of demand draft of an amount of Rs 5,20,000/- (Five Lacs & Twenty thousand Only) of any schedule Indian bank in favor of REC Power Distribution Company Limited, Payable at New Delhi

.The EMD of unsuccessful bidder will be returned within 90 days from the contract and EMD of successful bidder will also be returned after acceptance of work order and submission of PBG (Performance Bank Guarantee) i.e. 10% of the Contract Value.

- The bid shall remain valid for a period of 90 days from the last date of bid opening.

SECTION-II

PREFACE

Goa Electricity Department (GED) has recently awarded IT Implementation Works under Part-A of R-APDRP Scheme to M/s REC Power Distribution Company Limited (RECPDCL) with Tata Power Delhi Distribution Limited as its Technology Partner.

The Scope of Services includes Preparation of Base-line Data System for the project area covering Consumer Indexing, GIS Mapping, Automatic Metering (AMR) on Distribution Transformers and Feeders, and Automatic Data Logging for all Distribution Transformers & Feeders. It would include Asset Mapping of the entire distribution network at and below the 11kV transformers and include the Distribution Transformers and Feeders, Low Tension lines, poles and other distribution network equipment. It will also include adoption of IT applications for meter reading, billing & collection; energy accounting & auditing; MIS; redressal of consumer grievances and establishment of IT enabled consumer service centers etc.

The Programme is proposed to be implemented on all India basis covering Towns and Cities with a population of more than 30,000 (10,000 in case of Special Category States) as per population data of 2001 Census. In addition, in certain high-load density rural areas with significant loads, works of separation of agricultural feeders from domestic and industrial ones, and of High Voltage Distribution System (11kV) will also be taken up and accordingly four towns have been identified to be covered under the scheme as per the details mentioned in Table 1.

Goa, a tiny emerald land on the west coast of India, the 25th State in the Union of States of India, was liberated from Portuguese rule in 1961. It was part of Union territory of Goa, Daman & Diu till 30 May 1987 when it was carved out to form a separate State. Goa is India's smallest state in terms of area and the fourth smallest in terms of population. Located on the west coast of India in the region known as the Konkan, it is bounded by the state of Maharashtra to the north and by Karnataka to the east and south, while the Arabian Sea forms its western coast.

Panaji (also referred to as Panjim) is the state's capital. Vasco da Gama is the largest city. The historic city of Margao still exhibits the influence of Portuguese culture.

Renowned for its beaches, places of worship and world heritage architecture, Goa is visited by hundreds of thousands of international and domestic tourists each year. It also has rich flora and fauna, owing to its location on the Western Ghats range, which is classified as a biodiversity hotspot.

Goa covers an area of 3702 square kilometers and comprises two Revenue district viz North Goa and South Goa. Boundaries of Goa State are defined in the North Terekhol River which separates it from Maharashtra, in the East and South by Karnataka State and West by Arabian Sea. Goa lies in Western Coast of India and is 594 Kms (by road) away from Mumbai city.

Goa, for the purpose of revenue administration is divided into district viz. North and South Goa with headquarters at Panaji and Margao respectively. The entire State comprises 11 talukas. For the purpose of implementation of development programmes the State is divided into 12 community development blocks. As per 2001 census, the population of the State is 13,42,998. A very striking feature of Goa is the harmonious relationship among various religious communities, who have lived together peacefully for generations. Though a late entrant to the planning process, Goa has emerged as one of the most developed States in India and even achieved the ranking of one of the best states in India with regards to investment environment and infrastructure.

This RFP is being floated to appoint business associate (BA) for Rate Contract for supply and installation of Network Cabling System, Routers and Switches at various locations / offices in 4 Towns of GED. The equipment are required to be supplied against release orders which would be placed as and when required. The activities for BA are described in the detailed scope of work.

Name of Town	Area in Sqkm	Network Length	No. of Consumers	No. of Transformers
Panjim	506	14220	5.16 Lacs	5000
Margao	1391			
Mapusa	1239			
Marmagao	109			

Number of consumers shall have growth of 7.5% per annum and shall reach 10Lacs in next 7 years.

Above data is only for reference and may vary in actual

Information of Project Areas				
Name of Project Area (town)	**Number of Subdivisions Offices**	**Number of Other Offices**	**Nearest Railway Station to HQ**	**Nearest Functional Airport to HQ**
Panaji	8	25	Carambolim	Dabolim Airport
Marmagoa	4	19	Vasco Da Gama	Dabolim Airport
Margoa	10	62	Madgao	Dabolim Airport
Mapusa	8	85	Tivim	Dabolim Airport
Total	30	191		

SECTION-III

Instructions to Bidders

3.1 Submission of Bid

Agency shall submit their responses online through e-tendering website www.tenderwizard.com/REC

A. The submission and opening of Bids will be through e-tendering process.

Agency can download Bid document from the RECPDCL web site i.e. http://www.recpdcl.in or portal.recpdcl.in or www.recindia.com or eprocure.gov.in and e-tendering regd. link is given in RECPDCL website i.e. www.tenderwizard.com/REC

***(Note:** To participate in the e-Bid submission, it is mandatory for agency to have user ID & Password. For this purpose, the agency has to register them self with REC PDCL through tender Wizard Website given below. Please also note that the agency has to obtain digital signature token for applying in the Bid. In this connection vendor may also obtain the same from tender Wizard.)*

Steps for Registration

(i) Go to website http://www.tenderwizard.com/REC
(ii) Click the link 'Register Me'
(iii) Enter the details about the E-tendering as per format
(iv) Click 'Create Profile'
(v) E-tender will get confirmation with Login ID and Password

Note- Online registration shall be done on e-tendering website i.e. **www.tenderwizard.com/REC** & in general, activation of registration may takes 24 hours subject to the submission of all requisite documents required in the process. It is sole responsibility of the bidder to register in advance.

B. Steps for application for Digital Signature from Bid Wizard:

Download the Application Form from the website http://www.tenderwizard.com/REC free of cost. Follow the instructions as provided therein. In case of any assistance you may contact RECPDCL officers whose address is given at the Bid.

Bid to be submitted through online mode on website www.tenderwizard.com/REC in the prescribed form.

C. The Agency qualifying the criteria mention in section VI should upload Bid document with duly signed scanned soft copy of the documents given below for the prequalifying response:

Pre- Qualifying Criterion Documents/Technical Bid)

1. Form-I ----------Letter of submission of Tender
2. Form-II ----------Pre-qualifying criteria details
3. Form-IV ----------FORMAT FOR NO-DEVIATION CERTIFICATE
4. Form-V ---------- Manufacturer Authorization Form
5. Annexure-A ----- Performance Bank Guarantee
6. Section-IX ------- Check-list for bidder / Compliance Check-list
7. EMD of Rs. 5,20,000/- in form of DD or Bank Guarantee may be drawn from a scheduled commercial bank in favour of The "REC Power Distribution Company Ltd", New Delhi and scanned copy to be uploaded and original to be submitted before the last date & time of Submission of Tender.
8. Documents required in supporting of pre-qualification criteria details.

Financial Bid

9. Form-III---------Financial Proposal (to be submitted through online mode)

Financial bid to be submitted in the specific format designed same may be downloaded from website www.tenderwizard.com/REC and after filling the form it is to be uploaded through digital signature.

The all document should be addressed to.

Addl. Chief Executive Officer REC Power Distribution Company Ltd. 1016-1023, 10th Floor, Devika Tower, Nehru Place, New Delhi - 110019

(Note:** All papers that comprise the Bid document of the concerned Bid must be numbered. An index of each page should also be provided**)

SECTION-IV

SCOPE OF WORK & SERVICE LEVEL AGREEMENT

1. Detailed Scope of Work

A. Scope of work for Routers and Switches

i Supply, installation, commissioning of Routers, Switches, related equipment and Software at locations / offices specified in the Release Order.

ii All supplied items must conform to the detailed technical specifications mentioned in this tender document.

iii Packaging and transportation from the manufacturer's work to the site including port and customs clearance will be borne by the bidder.

iv Receipt, storage, preservation and conservation of equipment at the site. \

v Insurance of all equipment from manufacturer's site till installation, commissioning, handing over and user acceptance will be borne by the bidder.

vi Maintain the mandatory and recommended spares during warranty and AMC period and provide the list of the same.

vii Install the equipment, obtain user acceptance and submit a copy of user acceptance to designated authority.

viii Whenever a material or article is specified or described by the name of a particular brand, manufacturer or trade mark, the specific item shall be understood as establishing type, function and quality desired. Products of other manufacturers may also be considered, provided sufficient information with necessary certificates and documents are furnished so as to enable the RECPDCL to determine that the products are equivalent to those named. The Decision of RECPDCL shall be final and binding on the bidder in this regard. In case bidder proposes the products of other

manufacturer, necessary certificates and documents shall be submitted along with the bid.

ix The bidder shall provide 3 years onsite warranty and 2 years Annual Maintenance Contract (AMC) of all supplied, installed and commissioned equipment as per Service Level Agreement (SLA).

x Provide ongoing product information and documentation such as User manuals, System administrator manuals, Technical manuals, Installation guides etc as applicable.

xi The Bidder shall be responsible for providing all material, equipment and services specified or otherwise, which are required to fulfil the intent of ensuring operability, maintainability and the reliability of the complete work covered under this specification.

xii It is not the intent to specify all aspects of design and installation of associated systems mentioned herein. The systems, sub-systems and equipment/devices shall conform in all respect to high standards of engineering, design and workmanship, and shall be capable of performing continuous commercial operation.

xiii The bidder shall make his own necessary arrangements for the following and for those not listed anywhere else :

a. Office and store.
b. Transportation.
c. Boarding & lodging arrangement for their personnel

B. Scope of work for Cabling System

a) The scope of work involves supply, installation, testing and commissioning of Local Area Network and other related equipment for Data Centre, Customer care centres, Sub division, division, Circle, Head Quarter and any other office of the utility as per their requirement. The LAN shall be used to connect all servers, networking equipment & Users at the relevant location.

b) LAN Network setup should be planned for high-speed connectivity to the servers, with non-blocking design, can handle congestion of traffic and manage the bandwidth available during peak load.

c) The network equipment shall be highly reliable providing 99.99% uptime and ensuring availability of the network of 99.99%. The reliability should be provided at the levels including cabling infrastructure, active components, on link level, redundant cabling. The bidder shall identify the point of failures in active component; define multiple logical paths, load balancing and QOS implementation.

d) The Bidder in consultation with RECPDCL/TPDDL Project In-charge and GED Local In-charge shall determine the exact positioning of equipment Installation, housing of equipment and cable routing.

e) The Bidder to survey the locations before laying and shall prepare his proposed plan with estimation of quantities for support material required, racks, extension boards, cables, conduit/channels as desired within specified limit of the contract, to ensure proper optimized layout plan – along with necessary approval by User.

f) Supply of Cat-6 Patch Panel adhering to International design & quality standards to be ensured.

g) Configuration shall be so structured so as to provide desired number of user ports (as specified in Bill of Quantities).

h) Bidder to ensure proper cable dressing and should display layout plans at centre point of the location.

i) Bidder to ensure proper numbering of LAN points along with numbering at junction boxes.

j) Insurance of all equipment from manufacturer site till installation, commissioning and handing-over/ user acceptance will be borne by the Bidder.

k) The Bidder to provide a complete and final location table and spreadsheet indicating all wall jack locations including the following information: jack numbers, room number, wall orientation per jack number North, South, East, or West, or Power Pole (if applicable), landmark orientation and distance. Cable Installation through the floor will be released to meet applicable codes.

l) Commissioning of cabling at Data Center shall be as per technical specification.

m) The Bidder to ensure the availability of certified network equipment for installation and commissioning.

n) The bidder to ensure laying of UTP / Cat 6 cables through conduit / buttons/ flexible pipes, preliminary testing and numbered ferruling, fixing of face plate with information outlet / key stone jack (I/O). Fixing of LAN cable at patch panel, and numbering of face plate, numbering of patch panel.

o) The bidder to submit document of layout plan with panel numbering for each location after completion of installation.

2. Detailed Technical Specification

a) General Requirements

a. The supplier shall submit the data sheets for each of the equipment model detailing the specifications of the equipment.
b. The equipment models shall be supported by the OEM for a minimum period of next five years.
c. All the Routers shall be of the same Make/Manufacturer and all the switches shall be of the same make/manufacturer and shall be covered under same back-up guarantee from the same OEM to ensure full compatibility, interworking and inter-operability.

d. Technical Specifications of various type of Routers and Switches shall have full compliance with R-APDRP (Part-A) Scheme, which is mentioned in SRS Document and its amendment available on website *www.**apdrp**.gov.in*. However any higher specifications are acceptable in case of any technical specification has become obsolete.

e. **Detailed Technical Specification for Cabling System:**

i. Category 6 (XL-7) UTP, 4 Pair (High Performance) cables shall extend as per the layout requirement of the Data Center & Disaster recovery Center shall consist of 4 pair, 24 gauge, UTP and shall terminate on 8 Pin modular jacks provided at each outlet.
ii. Cable jacket shall comply with Article 800 NEC for use as a Plenum or Non Plenum cable. The 4 Pair UTP cable shall be UL and C Listed Type of CMP Plenum or CM non-plenum cable. The high performance category6 UTP Cable shall be of traditional round design with Mylar Separator tape between pairs 2/3 and 1/4. The Cable Shall support voice, Analog Base band video/Audio/Fax, Mbps 10/100/1000BAseT Ethernet, Digital Audio, 270 Mbps Digital video, and emerging high-bandwidth applications, including 1 Gbps Ethernet.
iii. All Category 6 high performance cables shall meet or exceed the following-:

- Mutual capacitance 47.5 nF/m
- Characteristic Impedance 100 Ohms(+/-3%) at 1-550Mhz
- DC Resistance 9.83 Ohms/100m
- Attenuation <33db at 250 MHz
- Return Loss <17db at 250 MHz

f. Implementation Plan for Cabling System

For redundancy configurations in the cabling setup, it should be noted that each server will have two network connections connected using standard patch cords to the same rack which would have either a patch panel, / I/O outlet, or a switch.

a) From that particular switch / patch panel/ I/o outlet, there should be 2 connections going to at least two different network switches that are located in each row. This will mean that there are dual cable paths from the server, to the network switches in each row, and from the network switches to the core backbone also. This would ensure a high level of cable redundancy in the setup.

b) The UTP cabling for Gigabit and normal 100 MB Ethernet should be Cat6 cabling to connect the servers & other access points with Core switches.

c) All network drops will be a dual drop of Category 6 rated cable. This configuration will support current application and present an additional growth capability.

d) The network drops will be terminated in compliance with Category 6 or higher specifications to two RJ45 jacks and labeled with IDF No., Panel No. (where applicable) and jack ID numbers.

e) All cable that runs back to cable telecom closets will be terminated on a Category 6 rated patch panel, clearly labeled for each jack.

f) The cabling Bidder should provide cable certification reports and warranty statements to verify each Category 6 drop.

g) Copper/UTP Category 6 cable runs exceeding 295 feet will be deemed unacceptable, as they would be out of specification with regard to the EIA/TIA 568x specification.

h) The maximum permitted horizontal distance is 90 meters (295') with 10 meters (33') allowed as the total cumulative length for patch cables, jumper cords, etc. (Total Maximum length not to exceed 100 meters).

i) Horizontal cables are Category 6 or (XL-7) or higher rated 4-Pair /100 Ohm UTP cables.

j) Copper cabling must have all four pairs terminated and pairs must not be split between jacks.

g. <u>Required Installation Practices to Be exercised By The Bidder -</u>

a) Cable and cable bundles will not be attached to any electrical wiring or light fixtures, nor will its vertical deflection allow it to come in contact with ceiling grids, HVAC mechanical controls, fluorescent light fixtures, or drainage line piping.

b) All cables terminating at the distribution frame will be vertically straight with no cables crossing each other from twelve inches the ceiling area to the termination block.

c) All MDF/IDF tie and station cable bundles will be combed and bundled to accommodate individual termination block rows. Each cable or cable bundle will be secured to both the distribution frame and the structure to which the

frame anchor points placed a maximum of nine inches apart starting at the center of the top of the termination block.

d) For any given MDF/IDF, a horizontal and vertical alignment for all mounting hardware will be maintained, providing a symmetrical and uniform appearance to the distribution frame.

e) Bidder will firmly secure any surface mount device, including station cable termination plates/jacks.

f) MDF/IDF, station cables, and tie a cable refers to distribution frames and cabling located inside the building as defined in any scope of work. All station cables in offices or work areas will be installed behind the wall or inside provided floor or duct channels.

g) Station cables will terminate on jacks as per the system requirements or specified by User. All terminations will be made to Category 6 standards. It is the responsibility of the Bidder to understand and comply with these requirements.

h) IDF/MDF termination racks and panels will be mounted vertically or horizontally (if any required) with a uniform spacing between each row of panels and jacks. Cable management will be mounted on the top, sides, and front as required to provide a symmetrical, aesthetic, and professional appearance of the frame.

h. <u>All Node Desk Top Station Cables shall meet the following criteria:</u>

a) Category 6 Plenum cables will be installed for all interior environments.

b) All patch and station will be terminated on Panduit Category 6 rated RJ45 jacks.

c) All patch and station cables will be kept to a minimum length in order to keep the channel distance within the 100 meter specification, as set by the EIA/TIA.

d) All data cable installations shall meet Category 6 Standards from the originating IDF to the furthest remote cable termination point.

i. <u>Supplemental Equipment</u>

Supplemental equipment refers to the different types of hardware, brackets racks and attachments required for installing the cabling in the Data center complex distribution system per these specifications.

All IDF/MDF wall mount racks shall include at minimum:

- Vertical front and back cable management along watch side of rack.
- Horizontal cable management at top of rack and every *48-72 jacks, or 72 port panel*, thereafter.
- Horizontal rack-mount surge protector including 12ft. cord for standard household 220V/15A power, On/Off switch, circuit breaker, and minimum 6 standard Multipurpose AC outlets. (To be installed in racks housing electronic equipment.)

All IDF/MDF floor mount racks will include at minimum:

- Secure attachment to building floor at bottom.
- Secure attachment to wall via ladder attachment to rack.
- Vertical front and back cable management along each side of rack.
- Horizontal cable management at top of rack and every 48-72 jacks, or 72 port panel thereafter.
- Horizontal rack-mount surge protector including 12ft. cord for standard household 220V/15A power, On/Off switch, circuit breaker, and minimum 6 standard Multipurpose AC outlets. (To be installed in racks housing electronic equipment.)

j. Miscellaneous

a) The cabling system is not considered Category 6 complaint unless all cabling components satisfy the requirements for Category 6 UTP installation practices and certified.
b) All UTP (*Unshielded Twisted Pair Cabling)* shall be installed according to the TIA/EIA standard regarding color codes, labeling and documentation.
c) The amount of untwisting when terminating Cat 6 jacks or panels is according to TIA/ EIA parameters for Category 6 installations.
d) The bend radii should not be less than the specification set by the EIA/TIA for Category 6 installations.
e) Conduit or duct may be required for some projects. Any wire molding required shall be of the non-adhesive-backed type using metal fasteners for attachment. Wall molding must be installed for all exposed cabling in marked areas.

k. Upon completion, the Bidder will provide the following documentation:

1. A document indicating the MDF and IDF cable count assignments Test results of all cable plans and distances between MDF, IDF, and MDF/IDF to Station Termination locations.

2. An updated cabling location table indicating:

    a) Cable drop label/Identifier
    b) Location of each drop by room number/location point.
    c) Location of each drop by north, south, east, or west wall, or power pole where applicable.
    d) Location of each drop by orientation/permanent landmark in the room.
    e) A corresponding cross-reference for each drop identifying the source IDF/MDF identifier.
    f) A corresponding cross-reference for each drop identifying the source IDF/MDF building(s).
    g) A corresponding cross-reference for each drop identifying the source IDF/MDF floor.
    h) A corresponding cross-reference for each drop identifying the source IDF/MDF room number.
    i) All information contained in the cabling location table will be delivered to User via both hard-copy/paper and electronic format.
    j) One hard copy of each updated cabling location table will be pasted in the location-wiring closet (IDF/MDF), attached to or inside the rack or enclosure.
    k) All documentation becomes the property of User.
    l) All document costs must be itemized and included in the quoted price for each project.
    m) An updated floor-plan providing visual identification of the drops or IDFs added for the installation(s) at the site :
    n) User will provide, where/when available, a floor-plan for the purpose of updating User drawings.

If a floor-plan does not exist for a site, Bidder should create a reasonably accurate hand-drawn floor—plan of the building and floors to be affected by the installation, attaching accurate dimension and orientation markings.

l. Reference Standards for Ethernet Switches shall comply with following IEEE, RFC's and standards accordingly for features specified against different switches in these specifications.

IEEE 802.3 10BaseT specification	IEEE 802.3u 100BaseTX specification
IEEE 802.3x full duplex on 10BaseT, 100BaseTX, and 1000BaseT ports	IEEE 802.3z 1000BaseX specification - 1000 Base SX, - 1000 Base LX
IEEE 802.1Q VLAN	IEEE 802.1D Spanning-Tree Protocol
IEEE 802.1p class-of-service (CoS) prioritization	IEEE 802.1p to DiffServ Mapping
IEEE 802.3ad or equivalent	RMON
IETF DiffServ based QoS (RFC 2474, 2475)	All 64 DSCP (DiffServ Code Points)
SNMP support including support for SNMPv3	RFC 1213 (MIB-II)
RFC 1493 (Bridge MIB)	RFC 2863 (Interfaces Group MIB)
RFC 2665 (Ethernet MIB)	RFC 2737 (Entity MIBv2)
RFC 1757 (RMON)	RFC 1157 (SNMP)
RFC 2748 (COPS)	RFC 2940 (COPS Clients)
RFC 3084 (COPS Provisioning)	RFC 2570 to RFC 2576 (SNMPv3)
RFC 2338 (VRRP)	RFC 1058 (RIP v1)
RFC 1723 (RIP v2)	RFC 2178 (OSPFv2)
BootP / DHCP Relay	BGP4

References and standards for Structured Cabling system -

- Commercial Building Telecommunications Wiring Standards ANSI/TIA 568-B.1, General requirements, May 2001
- Commercial Building Telecommunications Wiring Standards ANSI/TIA 568-B.2, Balanced Twisted Pair Cabling Components, May 2001
- Commercial Building Telecommunications Wiring Standards ANSI/TIA 568-B.3,Optical Fiber Cabling Components standards, April 2000
- TIA/EIA -569 - Commercial Building Standard for Telecommunications Pathways and Spaces.
- TIA/EIA – 606 – Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
- International Standards Organization/International Electromechanical Commission (ISO/IEC) DIS 11801, January 6, 1994.
- Underwriters Laboratories (UL®) Cable Certification and Follow Up Program.
- National Electrical Manufacturers Association (NEMA).
- American Society for Testing Materials (ASTM).
- National Electric Code (NEC®).
- Institute of Electrical and Electronic Engineers (IEEE).
- UL Testing Bulletin.
- American National Standards Institute (ANSI) X3T9.5 Requirements for UTP at 100 Mbps.

b) Detailed Technical Specifications of Central / Internet Router

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
A	**Common Requirements for all Routers**		
A.1	The Routers shall be compatible with Owners existing Wide Area Network. The Wide Area Links are planned for 2Mbps or higher Bandwidth capacity on leased circuits from ISPs (BSNL, MTNL etc.)		
A.2	Routers shall be equipped with Redundant Power Supply Unit (RPSU).		
A.3	The Routers shall be configurable and manageable through local console port, **USB port**, http interface, NMS software and as well through Telnet.		
B	**CENTRAL ROUTER FOR MPLS/ VPN Network**		
B.1	The Router offered shall deliver high performance IP/MPLS features and shall support Layer 3 MPLS VPN connection. It shall support PPP /Frame Relay transport over MPLS.		
B.2	The Router shall provide built-in monitoring and diagnostics to detect failure of hardware. The Router shall be provided with LED/LCD indication for monitoring Operational status of each module.		
B.3	The configuration changes on the Router should take effect without rebooting the router or modules.		
B.4	The router offered should have high MTBF & low MTTR.		
	The Router Shall be Rack Mountable on to 19”Racks.		
B.5	**Chassis:** I. Chassis shall be provided with configurable slots for interface Modules. All the modules in the Router shall be Hot Swappable Module.		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	II. Provided with Redundant Power Supply Unit. Single Power supply should support fully loaded Chassis. III. Provided with high speed Redundant CPU with distributed / shared Memory architecture. IV. Dual Flash support. It shall be possible to upgrade the FLASH to enhance the router software functionality.		
B.6	**Memory:** **Should have minimum 128 MB DRAM, and minimum 128 MB FLASH**		
B.7	**Console Port:** RS 232 I/F for configurations and diagnostic tests.		
B.8	**LAN Port:** 8 Port of 10/100/1000BaseT and 8 Port 1000Base X ports.		
B.9	**WAN Ports :** 32 Serial ports with synchronous speed up to 2Mbps and with interface support for V.35, V.24 Ports (to be interfaced to leased circuits or SCPC / MCPC available on Multiplexer). 2x 4nos. of G.703 Ports 75 Ohm. 2x 4port ISDN PRI E1 / channelised E1 interfaces for 120 Ohm G.703 I/f (ISDN PRI can be given internal or external to core router) Shall also support variety of interfaces like STM - 1, STM - 4, channelised STM - 1 and Gigabit WAN ports. **Each one** Module/Modules for 8 Port of various interface types as spare..		
B.10	**I/f Cable:** for all the WAN ports Connector Cable for connecting to SCPC / MCPC's/leased E1- V.35 Port (DB25 Connector) shall be prepared as per Pin Details to be given by owner.		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
B.11	**Expandability:** The offered Router configuration shall have sufficient free slots to accommodate additional 16 (min.) Serial Ports by way of putting additional Line Modules.		
B.12	**Network Protocols:** TCP/IP and support for IPversion6. Shall provide IP address Management via NAT Support as per RFC 1631		
B.13	**Routing Protocols:** RIPv2, OSPFv2 (RFC1583 & RFC 1793), OSPF on demand, BGP, BGP4 with CIDR implementation as per RFC 1771. The implement should be compliant as per RFC1745 that describes BGP4/IDRP IP OSPF interaction. It shall provide Policy routing to enable changes to normal routing based on characteristics of Network traffic. ISIS protocol support.		
B.14	**Bridging & Tunneling Protocols:** Transparent, Spanning Tree Algorithm, Auto Learning L2TP capability.		
B.15	**WAN Protocols:** Frame Relay (LMI & Annex.D & ITU Annex A), PPP (RFC1661), Multi-link PPP (RFC1717), HDLC/LAPB, Frame Relay support shall include Multi-protocol encapsulation over Frame relay based on RFC1490, RFC 1293 for Inverse Arp/IP, DE bit support.		
B.16	**Network Management:** SNMP, SNMPv2 support with MIB - II. and SNMP v3 with and Security authentication. Implementation control configuration on the Router to ensure SNMP access only to SNMP Manager or the NMS work Station. Asynch. Serial Port. RMON 1 & 2 support using service modules for Events, Alarms, History. Should have accounting facility. Shall support multilevel access. Shall be Manageable from any Open NMS platform. Shall support for telnet,ftp,tftp, http and https enabled M anagement.		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	Should have debugging facility through console. Authentication support shall be provided via RADIUS (Remote Authentication Dial - IN User Service), AAA support, PAP/CHAP, 3DES/IPsec encryption with hardware based encryption services using VPN module.		
B.17	**Optimization feature:** Data Compression for both header and payload to be supported for Frame Relay and Leased/Dial-up WAN Links. Dial restoral on lease link failure Dial on demand or congestion, Load Balancing. Support for S/W downloads and quick boot from onboard Flash. Online software re-configuration to implement changes without rebooting. Should support Network Time Protocol for easy and fast synchronization of all Routers.		
B.18	**QOS Support:** RSVP (Resource Reservation Protocol as per RFC 2205), IGMP (Inter Group Management Protocol Version 2 as per RFC 2236, Multicast Routing support DVMRP or equivalent, MOSPF, MBGP, etc. Policy routing (It shall be possible to affect the normal routing process for specific mission critical traffic through specified alternate routes in the network. A class based scheduling, Priority Queuing mechanism that shall provide configurable minimum Bandwidth allocation to each class and IP Precedence. Congestion Avoidance – Random Early Detection (RED). Support for Differentiated Services as per RFCs 2474, 2475, 2598 & 2597.		
B.19	**Backplane:** 100 Gbps Full duplex		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
B.20	**Switching Performance:** **Should have minimum** 100Mpps upgradeable to 200Mpps		
D	**Router for Internet Gateway**		
D.1	The specification of Router at Internet gateway should be similar to central router but this router shall have features of firewall and IDS, The specification of firewall and IDS shall be similar to those specified for core switch. The firewall features may be provided integral to Router or through a dedicated external appliance.		
E	**Other Requirements**		
E.1	Data Centre will be connected to Internet through a minimum 2 Mbps Internet Leased Line. The Internet link shall be terminated in a separate Internet router.		
E.2	The routers at Data Centre shall have the provision for connecting to DR site in case the same is established at a later date		
E.3	Utility HQ offices would be connected to the Data Centre through a minimum 2Mbps VPN links and ISDN lines. The Router shall have ISDN BRI Card for ISDN connectivity in case of link failure.		

c) Technical Specifications for Switches (Core, Access and Distribution Switches)

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
A	**Common to Core switch, Access switch and Distribution switch**		
A.1	All switch chassis shall be modular & rack mountable. The chassis configuration shall provide to 3 free slots for future expansion after full port module configuration and with redundant **s**witch fabrics, control modules, CPU cards and its operating Software /Supervisors. The chassis shall provide shared memory architecture and hot swappable modules. The chassis should support interfaces for 100BASE-FX, 10/100 BASE-TX, 10/100/1000BASE-T, 1000BASE-SX,-LX, and long haul (-LX/LH, -ZX) full duplex.		
A.2	All the ports on the Switch shall be offered with requisite connecting cables and Trans-receivers, if any for termination on Jack/Patch Panel.		
A.3	**Layer III Switching for IP:** The switch should be a multi-protocol switch with support for IP, IPX, IP – Multicast routing, For IP Routing the switch should have support for Static, RIP v1, RIP v2, OSPF, BGP4 routing, Provide Equal Cost Multipath routing for load sharing across multiple links, provide IP Multicast routing protocols desired – DVMRP or equivalent, PIM, PGM, IGMP, Multihoming etc. Support for IPV6 Classless Interdomain routing protocol DHCP Server and Relay Agent. For high availability, the switch should support the		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	standards based RFC 2338 Virtual Router redundancy Protocol (VRRP) / Hot standby routing protocol. Network Address Translation & Network Time Protocol should be supported. Each line or I/O module should support both Layer 2 and Layer 3 forwarding.		
A.4	**VLAN:** Support for VLANs. VLANS should be configurable on Port based, Policy based, Mac address based, and IP Subnet based. The switch shall support for Dynamic VLAN based on open standards.		
A.5	**Protocols:** IEEE 802.3ad Link Aggregation or Equivalent IEEE 802.1p (Priority Queues)Gateway Load balancing protocol or equivalent Autonegotiation for link speed negotiation IEEE 802.1Q VLAN Tagging/Trunking IEEE 802.1d multiple Spanning Tree group, A minimum of 20 instance of spanning tree groups is desired on layer 3 chasis. Should provide for fast convergence of spanning tree. IEEE 802.3ad Link Aggregation or equivalent should provide for at least 8 ports grouped in single logical link. Link aggregation shall be supported from other switches or across the similar chassis. Servers and Switches connectivity from switch should be configurable on load sharing layer2 link aggregation. Switch shall also provide configuration for port mirroring and 9000 byte jumbo Frame support for Gigabit ports. IEEE 802.1w -Quick Convergence		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	Spanning Tree IEEE 802.1S-Multiple Instances of Spanning Tree IEEE 802.3u Fast Ethernet IEEE 802.3x Flow Control IEEE 802.3z Gigabit Ethernet (IEEE 802.3af Power over Ethernet (only in Core switch or Distribution switch) Multi-Homing Support, Multicast Support & Multicast must be supported at Layer 2 in hardware so that performance is not affected by multiple multicast instances.		
A.6	**Policy Based Quality of Services** Comply to the IETF QoS and DiffServ standards Switch should support traffic classification based on Layer2, Layer 3 and Layer 4 parameters like ingress port, Ether Type (IP/IPX), VLAN ID, IP (RFC 2474 and RFC 2475) protocol type, Source IP addresses, Destination IP addresses, Source TCP/UDP ports, Destination TCP/UDP ports. QoS based on classification, marking, prioritization and scheduling. Bandwidth Engineering & Management – Per Port Minimum, Black-hole (Blocking), excess bursting, shaping Support for L3/L4 filtering capabilities for inter VLAN traffic, VTP or equivalent for VLAN management, Private or equivalent & Dynamic VLAN support, High Priority Transmit Queuing, Support for multiple WRED drop thresholds per queue. QoS-based forwarding based on IP precedence QoS implementation should support all 64 DiffServ Code Points (DSCP)		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	and all 4 DiffServ Classes. QOS support for 4 hardware queues per port or more. Strict priority and Weighted priority mechanisms for queuing and scheduling. IEEE 802.1p User Priority should be supported IEEE802.1p to DiffServ mapping also needs to be supported. Diffserv, IGMP		
A.7	**Management:** At least 5 levels of Management access to the switch for https, rlogin, telnet, snmp, rsh access to the switch. SNMP Support: RFC1157 SNMP v1/v2c TFTP Upload/Download Port Mirroring: Port to Port, VLAN to VLAN, Bi-Directional RMON: 4 Group (Statistics, Alarm, Events, History), on every port, no impact to performance Switch must be remotely managed with SSH support via one telnet session for all module configuration Should have functionality to add new features by upgrading only the central switching processor. Switch should support Remote SPAN feature to direct traffic from remote switch to the snooping device connected to central switch Policy Based Management Provisioned and Dynamic Policies at Layers 1-4 for QoS and Security Real Time Multi-Port Statistics Mac/IP Address Finder Device and Port Groupings for Navigation and Policy Management Private and Enterprise MIB		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
A.8	**Security:** Should provide for User level security – Discard unknown MAC addresses on the switch. Layer 3 /4 Access Control Lists (ACLs) standard and extended Support for IEEE 802.1x authentication for edge control against denial of service attacks and other management control policy. Security (User Access): Internal DB/External RADIUS/TACACS+, Support for IPSec protocol support for Firewall associated with core switch, Configuration Change Tracking, System Event Logging, Syslog.		
A.9	Packet filtering at the Network level should be supported Support IP filtering using “deep” packet filtering with support for Layer 4 parameters and even content based filtering for Firewall associated with core switch. RADIUS authentication needs to be supported for switch access.		
B	**Distribution Switch**		
B.1	The switch should support 10/100 Mbps Ethernet ports.		
B.2	The switch should support Gigabit Ethernet ports on fiber or copper.		
B.3	The switch should have the support for 10-Gigabit Ethernet ports.		
B.4	The switch shall support WDM (Wave Division Multiplexing) for Optical networking.		
B.5	The switch shall support FAN redundancy & switch fabric redundancy.		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
B.6	Backplane speed : shall be 50 Gbps or more Packet forwarding rate : 50 Mpps upgradeable to 100 Mpps **Should have minimum 24 port as per the desired specifications.** **Should have minimum 128K MAC Addresses support** **Should have minimum 4000 VLAN support**		
C	**Access Switch (Core Switch for Internet Gateway)**		
C.1	The specification of Access switch at Internet gateway should be similar to core switch but this switch shall not have firewall and IDS associated with it.		
C.2	The switch should support 10/100 Mbps Autosensing UTP Ports and 1000 Mbps Gigabit Ethernet 1000BaseSX ports.		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
C.3	Backplane speed : shall be 100 Gbps or more Packet forwarding rate : 100 Mpps upgradeable to 200 Mpps **Should have minimum 24 port as per the desired specifications.** **Should have minimum 128K MAC Addresses support** **Should have minimum 4000 VLAN support**		
D	**Core Switches**		
D.1	The switches offered shall support for Single CPU expandable to Dual CPU with both the modules in active -active or active-standby use, when the second CPU is installed/ configured to provide an automate fail over control in case one of the CPU module goes down.		
D.2	The Switches offered shall provide redundant power supplies to take full load of switch configuration and or on sharing basis between the modules. The redundancy may be configured with N+1 options. The power supplies offered shall be provided with cooling fans also in redundant configuration.		
D.3	The Core Switches shall be offered with no Single Point of failure for the chassis (failure which can bring the chassis down).		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
D.4	The Fail over time to second module should be in milliseconds.		
D.5	The Switch fabric offered shall provide high bandwidth to support high-density non-blocking gigabit Ethernet and 10gigabit Ethernet aggregation configurations.		
D.6	The switch offered shall provide high resiliency with multi link Trunking/Link aggregation on links between switch to switch or switch to Server Connection.		
D.7	The link Trunking shall provide & enable to increase the link bandwidth. It shall also provide the link capability that can be configured with one port active and other in standby among the two ports configured under Multi link Trunking.		
D.8	The Switch shall support for spanning tree protocol structure to prevent loops in the network and optimize to minimize the path traversal /alternate route for minimum latency or failure in one of the link path. The switches offered shall provide STP with fast start providing minimum network disruption.		
D.9	The Network Switches offered shall be Scalable and chassis base switch shall have at least **3 empty slots after** configuring the desired configuration in respective Core Switches.		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
D.10	The switches offered should support for single point Management System to monitor and configure the network. The Management System should be based on SNMP and RMON capabilities and enable the administrator to monitor the network. SNMP based management System should be able to handle basic requirements of the management of the network like managing VLANs, configuring ports and monitoring the traffic.		
D.11	The QOS configuration in switches shall provide for better service availability, Throughput, Latency or minimum Delay, control for Delay variation or jitter, no packet loss, delivery of Packet in sequence, maximum Connection availability, etc.		
D.12	QoS shall be configured with resource reservation and prioritization. Resource reservation (IntServ), such as RSVP, is a signaling protocol which sets up an end-to-end path with specific QoS metrics. If such a path cannot be created, the connection is refused.		
D.13	Prioritization (DiffServ) classifies each type of traffic according to the specific QoS metrics that it needs. Each classification is mapped into a Per-hop Behavior (PHB) which defines how each node in the network should treat the packet. For example, traffic can be differentiated into real-time (like voice or multimedia) and best-effort (like file transfer or e-mail) traffic. The real-time traffic would receive		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	the highest priority through the network as defined by the PHB; the best-effort traffic would receive lower priority.		
D.14	The nodes in the network use a variety of queuing schemes such as Weighted Fair Queuing (WFQ), Random Early Detection (RED) to give each packet the priority it needs and weighted round robin de-queuing based on multiple receive and transmit queues.		
D.15	The switches shall provide configuration of L2-L4 functionality • Multiple Load Sharing Trunks • Hot-Swapping: Fan-Tray, Module, Power Supply, Supervisor/CPU • Redundant Load Sharing Power Supply • Temperature Alarm and Power Monitoring • Multifunction LED's per port for port status, switch-level status LED's for system, RPS monitoring, and switch utilization. Easily identified LED indications on all modules for visual diagnostics. • Switch Management Capabilities: SNMP, Web, CLI, 4RMON Groups • External PCMCIA Flash for storing OS & configuration files for High Availability Design		
D.16	The switches offered shall provide shared interface for in-band and out-band management of switch fabrics with Multi layer switch feature.		
D.17	The switch shall have the support for functionality for the following requirements and this functionality should be achieved by addition of an appropriate additional card in the main chassis or through a dedicated external appliance:		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
D.18	1) In keeping with the dynamics of installation and variable needs for authorized and control access to associated servers Firewall functionality and IDS functionality should be achieved. The Firewall should have a capability of supporting 5 Gbps throughput. There should be a provision to support multiple Firewall Modules (Minimum 2 Modules) so that there is no single point of failure. The Firewall at the core switch should be able to create number of militarized (MZ) and demilitarized (DMZ) zones as per the requirement in the data center architecture.		
D.19	2) The Switch should have support for Automatic Load Balancing across servers which shall help in meeting the demand of high networking demands supporting upto 150000 sessions per second. The common IP protocols— including TCP and User Datagram Protocol (UDP), HTTP, FTP, Telnet, Real Time Streaming Protocol (RTSP), Domain Name System (DNS), and Simple Mail Transfer Protocol (SMTP) should be supported. The common load-balancing algorithms namely Round Robin, Weighted Round Robin, Least Connections, Weighted Least Connections, Source and/or Destination IP Hash (subnet mask also configurable) , URL Hashing and URL and Cookie-Based Load Balancing should be supported.		
D.20	3) The switch should have Gigabit		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	Ethernet switching Module to the latest state of art servers so that integration with servers becomes less complex and easier to manage. Independent cards may be proposed in line with specific server support if required. The card should have additional support for integration with EMS software for ease of management.		
D.21	Sufficient no of priority queues shall be provided on 100Tx and on Gigabit ports and on all L3 enabled port allowing users to prioritize data packets		
D.22	The Switch offered by the bidder shall be fully SNMP managed device with support for SNMP Agent MIB, MIB-II. RMON support for history, statistics, alarm and events.		
D.23	The device offered should preferably be 19" Rack mountable.		
D.24	The Switches offered shall support Virtual Networking and Virtual LAN Management feature. It shall be possible to form workgroup of users Reconfiguration of workgroup and physical relocation of users shall be achievable by on-screen management software features like Moves, Adds etc. Multi-cast and Broadcast messages shall be restricted to workgroup.		
D.25	The Switches offered shall provide Intrusion Detection, Firewall, and Network Analysis features through integrated modules or dedicated external appliance		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
D.26	Backplane speed : shall be 100 Gbps Full duplex or more Packet forwarding rate : 100 Mpps upgradeable to 200 Mpps **Should have minimum 96 port as per the desired specifications.** **Should have minimum 128K MAC Addresses support** **Should have minimum 4000 VLAN support**		
D.27	The switches shall support for Multi-service application platform to enable advanced Security application such as Firewall, IDS and IPS, WLAN security, SSL VPN access and MPLS baseline capabilities for VPN tunneling at layer 2.		
D.28	All switch ports shall be operable in Full-Duplex Operation on Ethernet and gigabit Ethernet ports.		
D.29	**General requirements** - The switch should be a high performance Layer 2 and Layer 3 switch. - The switch should provide Layer2-Layer 4 functionality - The switch should support High availability, resiliency and redundancy at the physical layer and at Layer 2 and Layer 3.		

d) Detailed Technical Specifications for Routers (MPLS/VPN Router at Utility offices)

All the Routers shall be of the same Make/manufacturer and shall be covered under same back up guarantee from the same OEM, to ensure full compatibility, inter - working and inter - operability.

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
1	The Routers shall be compatible with Owners existing Wide Area Network. The Wide Area Links are planned for 2Mbps or higher Bandwidth capacity on leased circuits from ISPs (BSNL, MTNL etc.)		
2	Routers shall be equipped with Redundant Power Supply Unit (RPSU).		
3	The Routers shall be configurable and manageable through local console port, http interface, NMS software and as well through Telnet.		
4	The Router offered shall deliver high performance IP/MPLS features and shall support Layer 3 MPLS VPN connection. It shall support PPP /Frame Relay transport over MPLS.		
5	The Router shall provide built-in monitoring and diagnostics to detect failure of hardware. The Router shall be provided with LED/LCD indication for monitoring Operational status of each module.		
6	The configuration changes on the Router should take effect without rebooting the router or modules.		
7	The router offered should have high MTBF & low MTTR.		
8	**Memory:** Flash: Default 8MB and maximum 72MB SDRAM: Default 64MB and maximum 320MB		
9	**Console Port:** RS 232 I/F for configurations and diagnostic tests		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
10	**LAN Port:** • Two fixed 10/100M high speed Ethernet ports • Two fixed high-speed synchronous ports • Two fixed low speed synchronous or asynchronous ports • One Port ISDN BRI-S/T interface • One Port ISDN PRI interface • 2 additional 10/100 M ports. • One AUX Scalability: Should additionally support 6 sync or async ports or more for future scalability		
11	**Network Protocol:** TCP/IP and support for IPversion6. Shall provide IP address Management via NAT Support as per RFC 1631		
12	**Routing Protocols:** RIPv2, OSPFv2 (RFC1583 & RFC 1793), OSPF on demand, BGP, BGP4 with CIDR implementation as per RFC 1771. The implement should be compliant as per RFC1745 that describes BGP4/IDRP IP OSPF interaction. It shall provide Policy routing to enable changes to normal routing based on characteristics of Network traffic. ISIS protocol support.		
13	**Bridging & Tunneling Protocols:** Transparent, Spanning Tree Algorithm, Auto Learning L2TP capability		
14	**WAN Protocols:** Frame Relay(LMI & Annex.D & ITU Annex A), PPP (RFC1661), Multi-link PPP (RFC1717), HDLC/LAPB, Frame Relay support shall include Multi-protocol encapsulation over Frame relay based on RFC1490, RFC 1293 for Inverse Arp/IP, DE bit support		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
15	**Network Management:** SNMP, SNMPv2 support with MIB-II. and SNMP v3 with and Security authentication. Implementation control configuration on the Router to ensure SNMP access only to SNMP Manager or the NMS work Station. Asynch. Serial Port. RMON 1 & 2 support using service modules for Events, Alarms, History. Should have accounting facility. Shall support multilevel access. Shall be Manageable from any Open NMS platform. Shall support for telnet, ftp, tftp and http & https enabled Management. Should have debugging facility through console. Authentication support shall be provided via RADIUS (Remote Authentication Dial-IN User Service), AAA support, PAP/CHAP, 3DES/IPsec encryption with hardware based encryption services using VPN module. IDS and Firewall features		
16	**Optimization feature:** Data Compression for both header and payload to be supported for X.25, Frame Relay and Leased/Dial-up WAN Links. Dial restoral on lease link failure Dial on demand or congestion, Load Balancing. Support for S/W downloads and quick boot from onboard Flash. Online software re-configuration to implement changes without rebooting. Should support Network Time Protocol for easy and fast synchronization of all Routers.		
17	**QOS Support:** RSVP (Resource Reservation Protocol as per RFC 2205), IGMP (InterGroup Management Protocol Version 2 as per RFC 2236, Multicast Routing support		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	DVMRP or equivalent, MOSPF, MBGP etc. Policy routing (It shall be possible to affect the normal routing process for specific mission critical traffic through specified alternate routes in the network. A class based scheduling, Priority Queuing mechanism that shall provide configurable minimum Bandwidth allocation to each class and IP Precedence. Congestion Avoidance – Random Early Detection (RED). Support for Differentiated Services as per RFCs 2474, 2475, 2598 & 2597.		
18	**Backplane: 100 Mbps or more full duplex**		
19	**Switching Performance** **200** Kpps		
20	Utility HQ offices would be connected to the Data Centre through a minimum 2Mbps VPN links and ISDN lines. The Router shall have ISDN BRI/PRI Card for ISDN connectivity in case of link failure.		
21	The Sub divisional Head Quarters would be connected to the Data centre through minimum 2 Mbps VPN connectivity from service provider along with ISDN line as back up connectivity. The Sub divisional HQ Routers shall have ISDN BRI /PRI Card for ISDN connectivity in case of link failure.		
22	The Customer care centres would also be connected to the Data centres through a minimum 2 Mbps VPN connectivity from service provider along with ISDN line as back up connectivity. The Routers at Customer care centres shall also have ISDN BRI /PRI Card for ISDN connectivity in case of link failure.		

e) Detailed Technical Specifications for Switches (Layer – II Switches)

All the switches shall be of the same make/manufacturer and shall be covered under same back up guarantee from the same OEM, to ensure full compatibility, inter - working and inter - operability.

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
1.	The switch should support 10/100 Mbps Autosensing UTP Ports and 1000 Mbps Gigabit Ethernet 1000BaseSX ports.		
2.	All the switches shall be of the same make/manufacturer and shall be covered under same back-up guarantee from the same OEM, to ensure full compatibility, inter-working and inter-operability.		
3.	**Interface Requirement-** The following type of interfaces should be available in the offered switch and with Fast Ethernet Interfaces (RJ-45)		
4.	**Architectural Features –** • 19-inch Rack-Mountable • Should have on board memory minimum of 16MB • The switch should have adequate flash memory to support all the features asked for and also to ensure storage of multiple software images. The switch software must support the flash file system to easily store and load multiple images. • IEEE 802.1Q VLAN Support - Port based VLANs • IEEE 802.1 x with voice VLAN feature that can permit access to an IP phone to the voice VLAN regardless of the authorized or unauthorized state of the port. • RADIUS / AAA Support • High MTBF Support • Minimum Switch fabric capacity		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	and forwarding rate as given below : ○ 24 Port Switch - Minimum 8 Gbps switching fabric and 6 Mpps or more wire-speed forwarding rate ○ 48 Port Switch – Minimum 12 Gbps switching fabric and 10 Mpps or more wire-speed forwarding rate		
5.	**Layer 2 Features** • L2 Switching Support • L2 Link Aggregation Protocol Support • VTP or Equivalent • Support for Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors • LLDP Support • DHCP Server and Relay support • Spanning-Tree Protocol (IEEE 802.1 D) • Per port broadcast, unicast and multicast storm control • Should be able to allow administrators to remotely monitor ports in a Layer 2 switch network from any other switch in the same network • Prevent edge devices not in the network administrator's control from becoming Spanning Tree Protocol root nodes. • Should shut down Spanning Tree Protocol PortFast-enabled interfaces when BPDUs are received to avoid accidental topology loops		
6.	**Redundancy Features** • Link Aggregation		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	• Spanning Tree (802.1 d) with support for spanning tree per VLAN or equivalent • The switch should have power supply redundancy solution		
7.	**Security Features** • Support for External RADIUS /TACACS+ for console access restriction and authentication • Multi-Level access security on switch console to prevent unauthorized users • Support for 802.1x port based authentication • 802.1 x with Port Security • Unicast MAC filtering • Support DHCP Snooping • Port Security based on the MAC address of a user's device with the aging feature that removes the MAC address from the switch after a specific time to allow another device to connect to the same port. • System Event Logging - Syslog		
8.	**Network Management** • Embedded support for Web based management using standard web browser. • Support for SNMP v1, SNMP v2c and SNMP v3 • Support for SPAN port functionality for measurement using a network analyzer or RMON probe. • Switch must be remotely managed via one telnet session for all module configuration • Provisioned and Dynamic Policies at Layers 1-4 for QoS and Security • Real Time Multi-Port Statistics		

No.	Description / Requirements	Supplier Response (Compliant / Not Compliant	Remarks
	• Should have capability to diagnose and resolve cabling problems on copper ports • Trace route to ease troubleshooting by identifying the physical path that a packet takes from source to destination • Device and Port Groupings for Navigation and Policy Management • Shall support MIB • Access Rights • Traffic Volume/Error/Congestion Monitoring • TFTP Download/Upload Software		
9.	**Standard Compliance** • IEEE 802.1QVLAN tagging • IEEE 802.1 D Spanning Tree • IEEE 802.3u Fast Ethernet • IEEE 802.1s • IEEE 802.1w • IEEE 802.1AB • IEEE 802.3ad • RFC 768 UDP • RFC 783 TFTP • RFC 791 IP • RFC 792 ICMP • RFC 826 ARP • RFC 854 Telnet		
10	Vendor needs to provide the inputs on below parameters – 1. Port densities Support 2. No. of MAC Addresses support 3. No of VLAN support		

f) UTP Cabling System

Description / requirements		Supplier Response (Compliant / Not Compliant)	Remarks
Type	**Unshielded twisted pair cabling system, TIA / EIA 568-B.1 addendum Category 6 Cabling system**		
Networks Supported	10 / 100 Ethernet, 155 Mbps ATM, 1000 Mbps IEEE 802.3ab Ethernet, and proposed Cat 6 Gigabit Ethernet		
Approvals			
TIA / EIA 568-B.1	ETL Verified		
IEEE 802.3ab	Zero-bit Error, ETL verified		
Warranty	25-year systems warranty; Warranty to cover Bandwidth of the specified and installed cabling system, and the installation costs		
Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR for 4-connector channel		

g) UTP Cable

Description / requirements		Supplier Response (Compliant / Not Compliant)	Remarks
Type	**Unshielded Twisted Pair, Category 6, TIA / EIA 568-B.2**		
Material:			
Conductors	24 AWG solid bare copper		
Insulation	Polyethylene		

Separator	Should be a cross filler. Any other filler type, like bi-directional strip would not be acceptable.		
Jacket	Flame Retardant PVC		
Approvals	UL Listed		
	ETL verified to TIA / EIA Cat 6		
Operating temperature	-20 Deg. C to +60 Deg. C		
Frequency tested up to	600 MHz		
Packing	Box of 305 meters		
Delay Skew	25ns / 100m MAX.		
Impedance	100 Ohms + / - 15 ohms		
Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR		

Patch Cords for patching active connections through Patch Panel shall be offered by the bidder. Distribution Frame (Jack/Patch Panel) shall be 19" Rack mountable. Bidder shall include 19" Wall Box Rack of suitable size (min.12U height) with key lockable doors (for security reasons) for housing the panel and hub stack.

h) UTP Jacks

Description / requirements		Supplier Response (Compliant / Not Compliant)	Remarks
Type	**PCB based, Unshielded Twisted Pair, Category 6, TIA / EIA 568-B.2**		
Durability			
Modular Jack	750 mating cycles		

750 mating cycles	200 termination cycles		
Accessories	Strain relief and bend-limiting boot for cable		
	Integrated hinged dust cover		
Materials			
Housing	Polyphenylene oxide, 94V-0 rated		
Wiring blocks	Polycarbonate, 94V-0 rated		
Jack contacts	Phosphorous bronze, plated with 1.27 micro-meter thick gold		
Approvals	UL listed		
Performance Characteristics to be provided with bid	Attenuation, NEXT, PS NEXT, FEXT and Return Loss		

i) UTP Jack Panels

Description / requirements		Supplier Response (Compliant / Not Compliant)	Remarks
Type	**24-port, Modular, PCB based, Unshielded Twisted Pair, Category 6, TIA / EIA 568-B.2**		
Ports	24, upgradeable to intelligent jack panel		
Port arrangement	Modules of 6-ports each		
Category	Category 6		
Circuit Identification Scheme	Icons on each of 24-ports		
Port Identification	9mm or 12mm Labels on each of 24-ports (to be included in supply)		
Height	1 U (1.75 inches)		
Durability			
Modular Jack	750 mating cycles		

Wire terminal (110 block)	200 termination cycles		
Accessories	Strain relief and bend limiting boot for cable		
Materials			
Housing	Polyphenylene oxide, 94V-0 rated		
Wiring blocks	Polycarbonate, 94V-0 rated		
Jack contacts	Phosphorous bronze, plated with 1.27micro-meter thick gold		
Panel	Black, powder coated steel		
Approvals	UL listed		
Termination Pattern	TIA / EIA 568 A and B;		
Performance Characteristics to be provided along with bid	Attenuation, NEXT, PS NEXT, FEXT and Return Loss		

j) Faceplates

Surface Mount Face Plate & Box with CAT6 Work Area Data I/O Outlet (RJ45) adhering to EIA/TIA-568-B2.1, ISO/IEC 11801(2002) and CENELEC EN50173-1 (2002) specifications. The outlets may preferably have a spring loaded dust covers.

Description / requirements		Supplier Response (Compliant / Not Compliant)	Remarks
Type	**1-port, White surface box**		
Material	ABS / UL 94 V-0		
No. of ports	One		

Workstation / Equipment Cords

Description / requirements		Supplier Response (Compliant / Not Compliant)	Remarks
Type	**Unshielded Twisted Pair, Category 6, TIA / EIA 568-B.2**		
Conductor	24 AWG 7 / 32, stranded copper		
Length	7-feet for workstation and 3feet for Jack panel/equipment		

Plug Protection	Matching colored snag-less, elastomer polyolefin boot		
Warranty	25-year component warranty		
Category	Category 6		
Plug			
Housing	Clear polycarbonate		
Terminals	Phosphor Bronze, 50 micron gold plating over selected area and gold flash over remainder, over 100 micron nickel under plate		
Load bar	PBT polyester		
Jacket	PVC		
Insulation	Flame Retardant Polyethylene		

Town-Wise Bill of Quantity

(CC – Centralized Call Center, DC – Data Center, DRC - Disaster Recovery Center)

Sr. No	Item Name	Panaji	Marmagao	Mapusa	Margao	DC	DRC	CCC	Total
1	Central Internet Router					1	1		2
2	Access Switch					1	1		2
3	Distribution Switch					1	1		2
4	Core Switch					2	2		4
5	Router for Offices	31	22	93	69	2	2	1	220
6	Layer II Switch	31	22	93	69	5	5	2	227
7	Wall mount rack 12 U with all accessories	47	63	69	26				205
8	24 Port CAT 6 Patch Panel	47	62	59	23	20	20		231
9	48 Port CAT 6 Patch Panel	--	--	--	--	10	10		20
10	Keystone Jack CAT 6 (I/o)	294	481	386	139	200	200		1700
11	Plug 8 Conductor Modular (RJ45 for CAT6)	294	481	386	139	200	200		1700
12	Patch Cord CAT 6 Giga Speed 3 Ft. Long	294	481	386	139	200	200		1700
13	Patch Cord CAT 6 Giga Speed 7 Ft. Long	294	481	386	139	200	200		1700
14	Cable CAT6 Size 4Core [1BOX=305Mtr]	71	71	66	34	40	40		322
15	Surface Mount Box / Face Plate	394	481	386	139	50	50		1500
16	Cable Manager with Cover (1U) for n/w en.	46	63	69	26	40	40		284

Note :-

a. Presently we have an indicative data for installation of 212 Routers as mentioned in above table. Actual installation will be done as per requirements at site.

b. Bidder to keep provision for 30% LAN cabling every year and 20% for other items for catering future growth.

4. Timelines for Delivery And Installation

- Bidder is required to deliver the equipment at the specified locations / offices within 4 weeks from the date of the Release Order. Locations/Offices would be as specified in the Release Order.
- Installation shall be completed within 1 week of delivery date.

Liquidated Damages

- In case of delay in supply and installation of equipments compared to the above schedule, LD shall be levied as per the clause 25 of GCC (Section VII - General Conditions of Contract) attached along with this document.
- For the purpose of calculating and applying LD, each Release Order shall be considered as a separate contract. Penalty/ LD if any, shall be deducted from the payments due under the Contract or by invoking the Contract Performance Bank Guarantee and/or otherwise.

5. Payment Criteria

5.1 For Supply & Installation

a) Payment shall be made on release order basis. Once the delivery/ installation against a particular release order is complete, bidder shall submit the invoices to RECPDCL.

b) 50% payment shall be released against successful completion of deliveries at the delivery location specified in the release order.

c) Balance 50% payment shall be released after successful installation of Routers and Switches with complete cabling system at user's site and user acceptance. The bidder is required to submit a copy of user acceptance to the designated Authority along with the invoice.

5.2 For AMC Period (i.e. 4^{th} and 5^{th} year after Warranty Phase):

a) Payment shall be released on yearly basis in arrears, i.e. at the end of every twelve months.

6. Service Level Agreement (SLA)

The SLA covers the following services:

1. **Terms of Agreement**
   This agreement shall remain in force from the date of commencement of warranty till the expiry of warranty and AMC for Cabling done, routers and switches installed and commissioned.

2. **Scope of Work for SLA**

a) Uptime guarantee

The agreement stipulates that bidder shall maintain Cabling, switches, routers with an uptime of 98%. The uptime will be calculated on monthly basis.

Bidder has to replace the equipment or its part as applicable in case it is not working within defined timelines.

b) Maintenance Services

Bidder shall provide following maintenance services under this agreement for Cabling:

- Corrective Maintenance: Any system failure will be attended at the user site by bidder's engineer and if necessary by their specialists

Any system failure will be attended at the user site by bidder's engineer and if necessary by their specialists. In case router or switch is to be taken to Test & Repair Center of OEM, bidder will provide standby equipment. It is responsibility of bidder to ensure proper earthing of location / site before installation/upgrade / maintenance of equipment till the warranty / AMC expires.

c) Spares Availability/Support for OS Patch

Bidder shall have a back-to-back Business Critical Support arrangement with the OEM for spares and escalation support. Bidder shall also have a formal arrangement with OEM for any technical support that may be required on the hardware and the operating system. A copy of agreement between bidder & OEM should be submitted along with the bid.

The deliveries under system software/patches support include: -

- System Software updates
- Pro-active patch notification & installation on Router.
- Operating System Bug-fixes
- Access to OEM Diagnostic Solutions Database.

d) Response and Resolution Time

- Response Time - 4 Business Hour Response Time during prime hours (10AM – 5PM Monday to Saturday)
- Resolution Time - Next Business Day Resolution Time.

3. Method of contact to Engineer

Bidder is required to submit the support escalation matrix for L1, L2, and L3 support along with the bid. Bidder should mention contact no, e-mail id and name of concerned person in this matrix. The support team of the bidder will work with IT Helpdesk of user for ensuring complaint resolution for any breakdown in the Cable/other hardware as per SLA.

4. Reporting

The Bidder shall prepare a monthly Uptime Summary Report in the User prescribed format.

5. Penalty for SLA Non-Compliance

In case the uptime commitment is not met, same shall attract a penalty @ Rs. 10000 per day or part thereof. The penalty amounts shall be recovered from the payments due to the vendor. A sample calculation is given below:

If the actual uptime achieved in 97.5%, penalty amount shall be:

Rs. 10000 x {(98.0 - 97.5) / 100 x 365} = Rs. 18,250

SECTION-V

GENERAL CONDITIONS OF TENDER

Part – 1

1. The bidder must fulfil the above eligibility criteria/pre-qualifying conditions for evaluation of their bids. Bids of bidders fulfilling the above eligibility/pre-qualifying conditions will only be evaluated by the duly constituted evaluation committee. Bids of the bidders not fulfilling the eligibility/pre-qualifying conditions given above may be summarily rejected. Undertaking for subsequent submission of any of the above documents will not be entertained under any circumstances.
2. RECPDCL reserve the right to verify/confirm all original documentary evidence submitted by the bidder in support of above mentioned clauses of eligibility criteria, failure to produce the same within the period as and when required and notified in writing by RECPDCL shall result in summarily rejection of the bid.
3. Engagement with RECPDCL does not confer any right to the agencies to be invited for participating in any bids, tender etc. floated by RECPDCL. RECPDCL reserves the right to call bids/assign work/associate the agency/agencies in any area as may be deemed fit by RECPDCL depending upon the profile provided by the agencies and requirement of assignment.
4. RECPDCL reserves the right to accept or reject any or all requests for engagement without assigning any reason or to accept in parts and engage more than one agencies at its sole discretion.
5. Acceptance of the application(s) constitutes no form of commitment on the part of RECPDCL. Furthermore, this acceptance of the application confers neither the right nor an expectation on any application to participate in the proposed project.
6. RECPDCL reserve the right to waive off any shortfalls; accept the whole, accept part of or reject any or all responses to the Tender.
7. RECPDCL reserve the right to call for fresh tenders at any stage and /or time as per the present and /or envisaged RECPDCL requirements even if the tender is in evaluation stage.
8. RECPDCL reserve the right to modify, expand, restrict, scrap, re-float the tender without assigning any reason for the same.
9. The responder shall bear all costs associated with the preparation and submission of its response, and RECPDCL will in no case be responsible or liable for these costs, regardless of the conduct or the outcome of the tender process.
10. Consortium and joint venture responses are not allowed, in any case. Also, bidders have to note that no sub-contracting / sub-letting is allowed
11. **Performance Security:** The agency need to deposit within fifteen (15) working days from the date of acceptance of work order, a Performance Security in the form of Bank Guarantee or Demand Draft (DD), for an amount of 10% (Ten per cent) of the Contract Value for the due performance and fulfilment of the contract by your firm which is valid for 72 months from the date of award of contract in the format placed at Annexure – A.

The Performance Bank Guarantee may be drawn from a scheduled commercial bank in favour of The “REC Power Distribution Company Ltd”, New Delhi.

The Performance Bank Guarantee may be discharged/ returned by the RECPDCL after the completion of the contract upon being satisfied for the performance of the obligations of your firm under the contract.

Failing to comply with the above requirement, or failure to enter into contract within 30 days or within such other extended period, as may be decided by the CEO, RECPDCL shall constitute sufficient grounds, among others, if any, for the annulment of the award of the tender.

In the event the firm being unable to provide the services, during the engagement period as per the contract for whatever reason, the Performance Bank Guarantee would be invoked by RECPDCL.

No Bank Charges/ interest shall be payable for the Performance Bank Guarantee.

12. **Rates and Prices**

a Bidders should quote item-wise rates/ prices including all taxes and duties as mentioned in Form-III by explicitly mentioning the breakup of basic prices and applicable taxes.

b Price quoted by bidder shall be firm for entire contract period.

c Price quoted shall be firm and any variation in rates, prices or terms during validity of the offer shall lead to forfeiture of the EMD of said bidder.

d The quoted prices shall be for delivery and installation at Goa. The prices shall be FOR destination and shall include all charges, levies and duties for delivery and installation at the specified locations in GOA State. The exact details of location address etc. shall be provided along with the release order.

13. In case of default in services or denial of services, RECPDCL, at its sole discretion, will be free to avail services of other service providers at your "Risk & Cost".

14. All other terms and conditions of the GENERAL CONDITIONS OF CONTRACT shall be applicable.

15. Bidders are advised to refrain from taking any deviations on this TENDER. Still in case of any deviations, all such deviations from this tender document shall be set out by the Bidders, Clause by Clause in the format as mentioned in Form IV and submit the same as a part of the Technical Bid. Please note that in case of deviations to the tender terms, bids may be liable for rejection.

SECTION-VI

ELIGIBILITY CRITERIA

Pre-Qualifying Criteria (Mandatory Requirements) for OEM

S. No.	Qualification Criteria	Documents Required
1	The OEM shall have ISO 9001:2008 and ISO 14000 certifications	Copy of ISO Certificates to be enclosed in this regard
2	The minimum average annual turnover of the OEM shall be Rs. 250 crores in last 3 financial years (FY 2011-12, 2012-13 and 2013-14).	Copy of Audited Balance Sheet and P&L Account for the respective financial years to be submitted in this regard
3	The OEM vendor shall have at least one service center within the Goa State with sufficient infrastructure.	Copy of Self certification along with location and contact details of the said service center to be enclosed in this regard.

Pre-Qualifying Criteria for Bidder

1. The bidder shall be a private/public Company registered under Company Act 1956 prior to Apr'2010. Certificate of Incorporation and Registration needs to be submitted along with the bid.
2. The average annual turnover of the bidder shall be a minimum of Rs. 5.25 crore in last 3 financial years (FY 2011-12, 2012-13 and 2013-14). Copy of Audited Balance Sheet and P&L Account for the respective financial years to be submitted in this regard
3. The bidder needs to provide details of their Locations in India in the following format.

Firm Detail – List of Locations in India

No.	Location Address	State	City	Contact Person	Contact Details
1	--				Phone No: Email Id:
2	--				

4. The bidder must have successfully executed at-least 3 similar projects (covering at-least 20 Locations in each project) in the last 3 financial years (FY 2011-12, 2012-13 and 2013-14). The details need to be submitted in the following format along with the copy of the completion Certificate.

Details of Successful Completion of Projects by Bidder

Financial Year of Completion	Equipment Supplied	Number of Units Supplied	Company Name and Location of Project

5. The bidder needs to provide authorization letter from OEM (specific to this enquiry) as per the format attached at Form V.

RECPDCL reserves the right to counter check any of the supporting documents directly from the respective client for their authenticity.

SECTION-VII

TENDER EVALUATION METHODOLOGY

OPENING OF BID:

The Bidder or his authorized representative may be present at the time of opening of bid on the specified date, but a letter in the form annexed at (Form – I) hereto must be forwarded to this office along with bid and a copy of this letter must be produced in the office by the person attending the opening of bid. Unless this letter is presented by him, he may not be allowed to attend the opening of bid.

In case of unscheduled holiday on the closing/opening day of bid, the next working day will be treated as scheduled prescribed day of closing/opening of bid; the time notified remaining the same.

EVALUATION OF BID

PRE-QUALIFIYING CRITERIA

Evaluation and comparison of bids will be done as per provisions of Pre-qualifying Criteria supporting documents as proof of pre-qualifying criteria at section – VI. RECPDCL reserves the right to verify the site of operation for above activity and list of persons provided as per qualifying criteria and accordingly decide upon meeting the requirement.

The RECPDCL will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed and whether the bids are generally in order qualifying to which bids shall be summarily rejected.

PRICE EVALUATION CRITERIA

1.1 Bidders should quote their rates/prices in Indian Rupees only which shall be inclusive of all applicable taxes, duties, levies, insurance, transportation etc., applicable for entire scope of work as per Price Schedule included to Form - III of this tender document.

1.2 Bids shall be evaluated on the basis of the total evaluated value as per the quoted rates for the services mentioned in Scope of Work. The total evaluated price as per the evaluation methodology mentioned as under at Form - III of this tender document and the other details mentioned therein will be the basis for the evaluation purposes and for arriving at inter-se ranking of the various bidders of the tender.

1.3 Bid shall be evaluated as per the “Total Price of the Bidder for this tender” as mentioned in Form-III, which shall be filled by the bidder as a Financial Bid.

AWARD CRITERIA

The purchaser will award the contract to the successful bidder whose bid has been determined to be in full conformity to the bid documents and has been determined as the lowest evaluated bid.

SECTION-VIII – TENDER FORMATS

FORM-I

Letter for Submission of Tender

To,

Addl. Chief Executive Officer,
RECPDCL,
1016-1023, 10th Floor,
Devika Tower,
Nehru Place, New Delhi-110019

Sub.: **Engagement of Service Agency**

Sir,

1. With reference to your Tender No. ---------- dated ---------- for **Rate Contract for Network Cabling, Locational Routers and Switches for IT Implementation at Goa Electricity Department,** I wish to apply for engagement with RECPDCL as "**Rate Contract for Network Cabling, Locational Routers and Switches for IT Implementation at Goa Electricity Department**"

   Further, I hereby certify that

   I have read the provisions of the all clauses and confirm that notwithstanding anything stated elsewhere to the contrary, the stipulation of all clauses of Tender are acceptable to me and I have not taken any deviation to any clause.

2. I further confirm that any deviation to any clause of Tender found anywhere in my Bid, shall stand unconditionally withdrawn, without any cost implication whatsoever to the REC PDCL.

3. Our bid shall remain valid for period of 90 days from the last date of bid submission.

Date:
Place:

Signature ……
Full Name ……
Designation ……
Address ……

Note: In absence of above declaration/certification, the Bid is liable to be rejected and shall not be taken into account for evaluation.

Form-II

Rate Contract for Network Cabling, Locational Routers and Switches for IT Implementation at Goa Electricity Department

PRE QUALIFICATION CRITERIA DETAILS

1. THE FIRM

2. Name

Regd. Address _____

a) Address of Office at Delhi/NCR _____

b) Contact Person's

i) Name & Design. _____

ii) Address _____

iii) Tel No. Landline_____**Mobile** _____

iv) Email ID _____

3. Type of Firm: **Private Ltd./ Public Ltd./ Cooperative/**
(Please tick) **Partnership/ Proprietor**

4. PAN _____

5. Service Tax Reg. No.:

6. E.M.D. Details **Rs._**
DD No._
Name & Address of Bank

Please upload duly signed copies by authorized signatory of documentary evidence e.g. work order, corresponding satisfactory job completion certificates from clients with amount of work order in support of above and any other document indicated in prequalifying criteria)

Signature……
Full Name……
Designation……
Address ……..

REC Power Distribution Company Limited	

Form-III

Financial Bid (To be submitted through online mode online) **PROFORMA OF SCHEDULE OF RATES**

Bidder Name:

Price Table - I

Sr. No (A)	Item Name (B)	Quantity (C)	Rate per unit (in Rs.) (D)	Applicable Taxes per Unit (in Rs.) (E)	Total all inclusive unit price (Rs.) (F=DxE)	Total Amount (Rs.) (G=CxF)
1	Central Internet Router	2				
2	Access Switch	2				
3	Distribution Switch	2				
4	Core Switch	4				
5	Router for Offices	220				
6	Layer II Switch	227				
7	Wall mount rack 12 U with all accessories	205				
8	24 Port CAT 6 Patch Panel	231				
9	48 Port CAT 6 Patch Panel	20				
10	Keystone Jack CAT 6 (I/o)	1700				
11	Plug 8 Conductor Modular (RJ45 for CAT6)	1700				
12	Patch Cord CAT 6 Giga Speed 3 Ft. Long	1700				
13	Patch Cord CAT 6 Giga Speed 7 Ft. Long	1700				
14	Cable CAT6 Size 4Core [1BOX=305Mtr]	322				
15	Surface Mount Box / Face Plate	1500				
16	Cable Manager with Cover (1U) for n/w en.	284				
					Total of Table I for the mentioned Quantities	

Price Table – **II (AMC Charges for 2 years i.e. Post Warranty Period)**

REC Power Distribution Company Limited	

Sr. No	Item Name	Quantity	Rate per unit per Year (in Rs.)	Applicable Taxes per Unit (in Rs.)	Total all inclusive unit price (Rs.)	Total Amount (Rs.)
1	Central Internet Router	4				
2	Access Switch	4				
3	Distribution Switch	4				
4	Core Switch	8				
5	Router for Offices	440				
6	Layer II Switch	454				
7	For Complete Cabling System	2				
Total of Table II for the mentioned Quantities						

Total Price of the bidder for this tender = Total of Price Table I + Total of Price Table II

Note:-

- The rates are invited for entering into an RC valid for one year from the date of issue of contract. Prices are to be quoted accordingly. The quantities mentioned above are for evaluation purposes only. Actual Quantities may vary as per site requirement and Release Orders against this Rate Contract (RC) shall be placed accordingly.
- The quoted rates must be inclusive of all taxes as applicable at the time of bidding.
- Bidders are to quote their rates strictly as per above format.
- RECPDCL reserves the right to increase or decrease the RC quantity (on same rate and terms and conditions) by another 20% if required.

FORM IV

FORMAT FOR NO-DEVIATION CERTIFICATE

Unless <u>specifically</u> mentioned in this schedule, the tender shall be deemed to confirm the RECPDCL's specifications:

S. No.	Clause No.	Details of deviation with justifications

By signing this document we hereby withdraw all the deviations whatsoever taken anywhere in this bid document and comply to all the terms and conditions, technical specifications, scope of work etc. as mentioned in the standard document except those as mentioned above.

Seal of the Company:

Signature

Name

Note: In absence of above declaration/certification, the Bid is liable to be rejected and shall not be taken into account for evaluation.

FORM-V

FORMAT FOR MAF

MANUFACTURER AUTHORIZATION FORM

(To be submitted on OEM's Letter Head)

Date: …….

ICB No.: …….

Invitation for Bid No.: ……..

Alternative No.: …….

To,

The Nodal Officer (R-APDRP Part-A Project)

Govt. of Goa, Electricity Department

Panjim, Goa 403001

Sir,

WHEREAS M/s. *[name of OEM]*, who are official manufacturers of …… having factories at *[address of OEM]* do hereby authorize M/s *[name of bidder]* to submit a Bid in relation to the Invitation for Bids indicated above, the purpose of which is to provide the following Goods, manufactured by us

…….

and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 26 of the General Conditions of Contract or as mentioned elsewhere in the Tender Document, with respect to the Goods offered by the above firm in reply to this Invitation for Bids.

We hereby confirm that in case, the channel partner fails to provide the necessary services as per the Tender Document referred above, M/s *[name of OEM]* shall provide standard warranty on the machines supplied against the contract. The warranty period and inclusion / exclusion of parts in the warranty shall remain same as defined in the contract issued to their channel partner against this tender enquiry.

Yours Sincerely,

For ……..

Authorized Signatory

Note: In absence of above declaration/certification, the Bid is liable to be rejected and shall not be taken into account for evaluation.

ANNEXURE-A PERFORMANCE BANK GUARANTEE

M/s. REC Power Distribution Company Ltd.
1016-23, 10th Floor, Devika Tower,
Nehru Place,
New Delhi
(With due Rs.100/- stamp duty, if applicable)

OUR LETTER OF GUARANTEE No. : ……..... **Date: ……**

Amount: ……. **Valid Date: ……**

Bank Name & Address: ……

In consideration of REC Power Distribution Company Ltd. having its office at 1016-1023, 10th floor, Devika Towers, Nehru Place, New Delhi (hereinafter referred to as "RECPDCL" which expression shall unless repugnant to the content or meaning there of include all its successors, administrators and executors) and having entered into an agreement dated _____/issued Work Order No._____ dated _____with/on as_____ (hereinafter referred to as "The service" which expression unless repugnant to the content or meaning thereof, shall include all the successors, Administrators and executors).

WHEREAS the Agency having unequivocally accepted to supply the materials as per terms and conditions given in the Agreement accepted to providing service as per terms and conditions given in the Agreement dated _____ /Work Order No. _____ dated _____ and RECPDCL having agreed that the Agency shall furnish to RECPDCL a Performance Guarantee for the faithful performance of the entire contract, to the extent of 10% (ten percent) (or the percentage as per the individual case) of the value of the Work Order i.e. for _____.

We, _____ (The Bank) which shall include OUR successors, administrators and executors herewith establish an irrevocable Letter of Guarantee No. _____ in your favour for account of _____ (The Agency) in cover of performance guarantee in accordance with the terms and conditions of the Agreement/work Order.

Hereby, we undertake to pay upto but not exceeding _____ (say _____ only) upon receipt by us of your first written demand accompanied by your declaration stating that the amount Claimed is due by reason of the Agency having failed to perform the Agreement and despite any contestation on the part of above named Agency.

This Letter of Guarantee will expire on _____ including 30 days of claim period and any claims made hereunder must be received by us on or before expiry date after which date this Letter of Guarantee will become of no effect whatsoever whether returned to us or not.

_____
Authorized Signature
Chief Manager/Manger

Seal of Bank

SECTION-IX

Check-list for bidder

Mandatory forms that needs to be submitted

S.No.	Item	Furnished
1	Documents against eligibility criteria	Yes/ No
2	Bid Security	Yes/ No
3	One original copy duly signed- Technical Proposal	Yes/ No
4	Four copies of Technical Proposal - Hard copies	Yes/ No
5	Five copies of Technical Proposal - Soft copies	Yes/ No
6	One original copy duly signed- Price proposal	Yes/ No
7	Four copies of Financial Proposal - Hard copies	Yes/ No
8	Five copies of Financial Proposal - Soft copies	Yes/ No
9	Proof of turnover and net worth for the last three audited financial years of Bidder, consortium member (if any) and sub-contractors	Yes/ No
10	Proposed SLA template	Yes/ No
11	Filled-in copy of Bidding forms	
12	Receipt of purchase of tender	Yes/ No
13	Certificate of Incorporation and Registration	
14	Audited financial reports and copy of the certificates supporting the annual turnover for each of last 3 financial years	Yes / No
15	Latest ISO certificates of OEMs	Yes / No
16	Last three years audited balance sheets and Profit and Loss Accounts Statements of OEMs	Yes / No
17	Self-Certification from OEMs and CA Certificate for OEMs annual turnover more than Rs. 250 Crores from hardware business in each of the last three financial years.	Yes / No
18	Self- certification from OEMs for their service center within the State with sufficient infrastructure.	Yes / No
19	Certificate from OEMs that the supplied equipment models shall be supported by the OEMs for a minimum period of next five years.	Yes / No

Compliance checklist

S.No.	Item	Furnished
1	Please confirm you agree to all clauses specified in the tender document.	Yes/No
2	Please confirm you have submitted all the mandatory forms.	Yes/No
3	Please confirm you have noted the bid submission deadline mentioned in this tender document.	Yes/No
4	Please confirm you have noted that the performance security will be furnished within time period mentioned in this tender document.	Yes/No
5	Please confirm you have provided all document proof to substantiate you qualifying the eligibility criteria as mentioned in this tender document	Yes/No
6	Please confirm you have complied with all services specified in the detailed scope of work.	Yes/No
7	Please confirm that you comply with all clauses specified in the General Conditions of Contract.	Yes/No
8	Please confirm that all goods (software and hardware) and services have been included in the price proposal and is complete in all respects without any deviation/ missing items.	Yes/No
9	Please confirm that you have not submitted any alternate proposal.	Yes/No
10	Please confirm that you have noted the SLA guidelines and penalty clauses applicable.	Yes/No
11	Please confirm you have provided sufficient Bid security in proper form.	Yes/No
12	Please confirm you have responded to all technical specifications.	Yes/No
13	Bid Processing Fee.	Yes/No