

# RAMPUR HE PROJECT

## SCOPE OF WORK AND SPECIAL TERMS & CONDITIONS WIRELESS NETWORKING SOLUTION ON MONTHLY HIRE CHARGES FOR RHEP AT JHAKRI & BAYAL

Annex-I

### 1.0 Scope of Work:

Scope of work under this section covers the provision of material and Carrying out the work necessary for the design, supply, installation, commissioning, performance testing, acceptance testing, on Built and Operate as per specifications hereunder, and warranting trouble free safe operation of the installation. The Contractor shall provide all the required equipment and services, whether explicitly mentioned in these specifications or not to fulfill the intent of the specifications and to ensure the completeness, operation and maintainability of the system at no extra cost to the RHEP.

The scope of work under these specifications also includes providing maintenance support (including supply/replacement of spares) during the contract period of five years and can further be extended further for a maximum period of 5-years.

The detailed specifications of the equipment have been given in subsequent paragraphs.

### 2.0 Detailed Scope of Work:

The intent of scope is to provide:

Integrated solution for Data, Voice and Video to connect all the below mentioned offices of the RHEP in order to establish wireless network across the Offices for providing advance and reliable system with the major concern of better services, security and system stability using highly advanced TDD based OFDM radio technology. The hardware should consist of high powered 'point to multipoint' broadband POE wireless radio with suitable antennas offering high bandwidth distribution in 2.4 /5.8 GHz un-licensed band.

Sr.No.	Location
1	GM / HOP Office complex (Three Buildings) at Jhakri
2	Office Complex at Bayal
3	All Adit points between Jhakri to Bayal including Jhakri Intake, surge shaft.
4	Colony at Jhakri, Bayal and DuttNagar (later on).
5	Nathpa Jhakri Hydro power house (underground) at Jhakri and Surface Power House at Bayal.
6	Connectivity with VSAT (Presently installed at Bayal)

The proposed solution is to be properly integrated for Voice, Data & Video connectivity with the existing Ericsson MD 110 EPABX system being maintained by M/s HCL Infosystem Ltd Chandigarh.

The bidder is required to obtain a compatibility certificate from M/s HCL Infosystem Ltd Chandigarh for their proposed solution with the existing Ericsson network. The compatibility of the proposed solution with the existing MD 110 system of RHEP has to be ensured by the bidder along with HCL Infosystem ltd., Chandigarh as a joint responsibility so that the proposed solution does not hamper the smooth functioning of the existing network. The bidder has to produce the agreement copy mentioning the ownership of responsibility for their respective domain work.

Interested vendors may visit the proposed sites for site survey and submit the report and certificate confirming that they have visited the sites and also seen the existing

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system. It has to be further certified that their proposed solution will not disturb the existing voice and data network.

The RHEP reserves the right to change the locations if required at the time of installation. Total numbers of equipment's envisaged may vary depending upon the requirement to cover other resembling/ additional areas. The scope of work shall be comprehensive functional system complete in every respect.

### **3.0 Networking System:**

The Vendor has to ensure that the technology is well secured, equipped with authentication protocols such as WEP key identification, Mac address and service set identifier (SSID). The technology should be completely Radio controlled using for its management. The Radios should permit the administrator to share or schedule bandwidth allocation, block or restrict certain sites, change the security passwords the users, etc.

One number mail server and one number application server has to be deploy by the vendor at its own cost.

### **4.0 Technical Specification of Firewall:**

Dual ISP Support.

The deep packet inspection architecture inspects traffic to ensure network risks such as viruses, worms, Trojans, spyware, phishing attacks, emerging threats and Internet misuse are properly prevented.

Firewall Must have a below mention feature:

Gateway Anti-Virus, Anti-Spyware and Intrusion Prevention Service delivers intelligent, real-time network security protection against sophisticated application layer and content-based attacks including viruses, spyware, worms, Trojans and software vulnerabilities such as buffer overflows.

Powerful re-assembly free deep packet inspection engine  
Real-time gateway anti-virus, anti-spyware, anti-spam and intrusion prevention  
Comprehensive application control  
Stateful high availability and load balancing  
Standards-based Voice over IP (VoIP)  
Secure distributed wireless LAN services  
Onboard Quality of Service (QoS) features

Content Filtering Service enforces protection and productivity policies by employing an innovative rating architecture, utilizing a dynamic database to block over 55 categories of objectionable.

View Point is an easy-to-use Web-based reporting tool whose comprehensive reporting capabilities provide administrators instant insight into the health of their network including performance and security. Delivered through a series of historical reports using dashboards and detailed

View Point helps RHEP of all sizes track Internet usage, full regulatory compliance requirements and monitor the security status of their network.

### **5.0 Additional features:-**

- I. Wireless Wide area network for interconnecting all Laptop's and PC's for data sharing wirelessly at Jhakri and Bayal offices, residences and all site offices at all Adit points/surge shaft/power house.

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- II. The network should be capable of seamless integration with future Luhri HE project.
- III. CCTV for surveillance at all adit points, power house and surge shaft will be done with this network.
- IV. The centralized server (storage capacity at least 1 TB) on network will be capable of monitoring and controlling the misuse and limit the internet speed for each user & for implementing centralized software for general use on the network.
- V. Hardware for Desktops & Laptops to connect easily to this network.
- VI. Internet & other facilities (above said) need to be extended to colony (at Jhakri as well as Bayal) and later to proposed Duttnagar colony (opposite power house site at Bayal on the left bank of river Satluj).
- VII. Providing and maintaining Intranet mail server of at least 1 TB capacity.
- VIII. Entire communication over the Internet will be secure & encrypted, also additional security will be added by mapping MAC address & username/password for network.
- IX. This network can be extended to LHEP by adding desired components.
- X. Network will work on at least 18 MBps and 3MBPS for last mile..
- XI. Firewall system at entry point of the internet terminal to protect the network from viruses and threats.
- XII. Integration of system with our under operation Nathpa Jhakri Hydro Power station(underground) with upcoming Power House of Rampur HE Project at Bayal which may need further integration with downstream Luhri Project in future.
- XIII. Internet lease line with 4MBps speed

## **6.0 Special Design and Layout Conditions:**

The vendor has to consider the whole mission as a turnkey project and not just the supply of the components. The vendor will be solely responsible for deciding the hardware Components and deploy them to achieve the main goal of providing uninterrupted Connectivity.

## **7.0 General Requirement:**

1. All the vendors must attach the point to point compliance with specifications in their technical bid, without which offers will be rejected without any communication with the bidder.
2. The proposed system shall be of a manufacturer with similar experience and offerings in the IP network market, the letter stating the same should be submitted by the manufacturer.
3. The equipment proposed to be supplied by the Contractor shall be industry proven products and not the R&D products models.
4. Responsibility of deciding the no. and height of towers / masts / poles including their earthing, erection as well as the installation of antennas over them will be the sole responsibility of vendor, Who must ensure environment friendly methods/techniques.
5. The Contractor shall provide all the required equipment and services, whether explicitly mentioned in these specifications or not, to fulfill the intent of the specification and to ensure the completeness, operation and maintainability of the system at no extra cost to the RHEP.

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6. Installation of the equipment shall be done by the Contractor at Site (exact location shall be intimated by RHEP at the time of installation). Material/manpower required for such installation shall be arranged by the Contractor.
7. Technical literature of the equipment/components offered and as published by the original manufacturer of the component, shall be submitted.
8. Undertaking from OEM required for making availability of Spares and services for next 5 years from the date of supply of equipments addressed to RHEP and for another 5 year in case of extension of contract.
9. OEM or their authorized sales and service partners can participate. In case the dealer is participating then dealers have to submit Authorization letter from the OEM specifically for this tender addressed to RHEP. The OEM has to certify the quoted models as latest and on site support for 5 years and will further be supported in case of extension of contract.

## 8.0 Power Supply Arrangement

RHEP shall make available 220 Volts AC at 50 Hz power supply at Jhakri and Bayal. It will be in the scope of the Contractor to supply necessary nos. of UPS of desired kVA rating for uninterrupted working of the System. However, if the offered equipment is operating at different voltage level, it will be in the scope of the Contractor to furnish all required hardware to make the offered system compatible with the specified power supply arrangement.

## 9.0 Design and Construction

**It will be sole responsibility of the agency to arrange for any kind of statutory clearances/ licenses and make arrangement for installation of equipments in the land not belonging to SJVN Ltd. at their own. Role of SJVN shall be restricted to providing only logistic support.**

The system shall connect all the above mentioned Departments of the RHEP in order to establish wireless network across the Office's for providing advance and reliable system with the major concern of better services, security and system stability with redundancy at Back-bone link's. Applications using highly advanced TDD based OFDM radio router technology with open platform of IEEE 802.11 a/b/g.

The system should have security by providing user name and password properly mapped with the MAC address of the user machine so that any unauthorized usage of the network can be protected, However their should be a provision of providing Gateway Antivirus, Anti Spyware Service, Intrusion Prevention, Content Filter and limited access to our visiting officials as Guest users and can only use the network for internet browsing and not the LAN. RHEP reserves the right to change the location as proposed in above-mentioned sites at the time of installation. The system shall be suitable for outdoor installation.

The Bidder has to arrange for the suitable ISP for providing the desired internet bandwidth (4 MBps); the billing of the internet from service provider shall be paid by the agency which shall be paid by the agency which shall be reimbursed by SJVN along with the monthly bill.

The connectivity for all the users at various locations to the same LAN will be under the scope of the bidder. The proposed solution must be capable/enough bandwidth to carry the Voice, Video and Data/internet connectivity in the entire solution without any congestion.

**For voice Solution:** The proposed solution is to be integrated with the existing MD 110 EPABX system installed at Jhakri and Bayal to enable IP based network at selected locations. The vendor/bidder has to provide the voice connectivity at all the Adit points, power house and Surge shaft (Including RHEP Site office and contractor site office) The bidder must ensure RHEP that the proposed solution does not hamper the smooth functioning of the existing network and will take the responsibility also in case of any

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disruption in the existing services. It is proposed that all the points including the Jhakri intake will be connected for voice/video/data with RHEP Jhakri office's at one end and Bayal office at the other end. At each points it is proposed to have 4 voice connections (2 at RHEP site office and 2 at Contractor site office) in such a manner that all people across from Jhakri office to Bayal office can talk to each other over extensions.

**For Data Solution:** The proposed solution is to be designed in such a manner that the backbone must be minimum of 18 MBps bandwidth carrier and the last mile must be 3 MBps bandwidth carrier using un licensed band. The Back-bone link's must be redundant so that if one link fails the other takes over without interrupting the operations. The proposed solution will carry the internet bandwidth also for 150 users. It is also proposed to have the local Mail Server for 300 users. The entire data network must have firewall protection as per Technical Specifications (to be provided by vendor).

**For Video solution:** Their will be video surveillance facility at all the Adit points, power house & Surge Shaft with PTZ camera. The proposed solution must have the facility for Video Conferencing (point to point) at both end i.e. Jhakri and Bayal. In addition to this the individual officers can have the facility of initiating the video conferencing on one to one basis using their LAPTOP.

**For internet solution:** 4MBps speed.

## 10.0 Performance Criteria

The system along with all auxiliaries and accessories shall be capable of performing intended duties under specified conditions. It is the responsibility of the Contractor to supply the equipment as per guaranteed technical particulars and shall also guarantee the reliability and performance.

## 11.0 Site preparation, Supervision and installation

It shall be sole responsibility of the Contractor to make site prepared as per the requirements such as environmental conditions, power requirements etc. The Contractor shall ensure that his system operates efficiently under these conditions.

The Contractor shall be fully responsible for installation and commissioning of the equipment.

Installation of the equipment shall be done by the Contractor at Site (exact locations shall be intimated by RHEP at the time of installation). The Contractor shall arrange all Materials including consumables, Manpower, installation and testing tools etc. required for installation, testing and commissioning. All kind of works including civil, electrical, carpentry, welding, drilling etc. required for installation of equipment/components shall be in the scope of the Contractor.

The Contractor shall carryout complete installation through competent/ trained supervisor and workmen. All material shall be handled and installed taking due care and avoiding any damage to RHEP's property as well as not belonging to SJVN. Any damage and consequences (legal/financial) shall be sole responsibility of agency .

### 11.1 Inspection, testing and commissioning

On completion of supply of the equipment under this contract, each item of the equipment shall be thoroughly inspected jointly by RHEP and the Contractor.

On completion of installation, all the equipment shall be inspected jointly by the RHEP and the Contractor for their correctness and completeness at the site of installation for the start of acceptance tests.

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Any other tests, as RHEP may deem fit so as to confirm the performance or to establish the guaranteed technical parameters of either individual hardware items or integrated operation of system shall be conducted by the Contractor at the site. The guaranteed performance parameters/ features in respect of hardware and software items to be supplied under the contract shall be established by the Contractor during such performance and guarantee tests. Should the results of these tests show any deficiency/deviation from the corresponding guaranteed parameters/features, the Contractor shall do the modification/replacement/addition so as to make the hardware and software items to function at the desired level of guaranteed performance. All cost for such modifications/replacements /additions including labor, material and the cost of additional testing to prove that the hardware & software meets the guaranteed performance shall be borne by the Contractor.

Hardware/software shall be under trial for minimum of 7 days for checking the various features of software/hardware before the certificate of successful commissioning is issued by the RHEP.

## **12.0 Damage to system:**

In case of any type of damage (natural or other) to system SJVNL is not liable for paying or compensating vendor.

## **13.0 General terms and conditions**

1. Vendor has to submit the detail specification of Hardware/Software at the time of tender for technical evaluation.
2. No extra payment/charges other than monthly payment shall be made to vendor.
3. RHEP has the right to terminate the contract without any payment to contractor in case of failure or delays from the contractor side in providing service. In this case, performance security shall be forfeited.
4. Contractor has to provide sufficient technical and supporting staff required for satisfactory service. They shall be available whole time and on call during the contract period. The number and detail of these shall be furnished with the bid. The same shall be checked by before releasing of monthly bill.
5. Failure of service shall be considered if the service is not available in a day for a time totaling one hour. If service for more than 1hour a day is not available a penalty per hour equal to 0.14% of monthly payment shall be imposed to the agency. The penalty charges shall be calculated on pro-rata basis for further calculations.
6. Daily record of availability of service shall be kept, which will be prepared by Engineer of the agency and jointly signed by him and SJVN representative.
7. A day will be considered from 9.30 am to 9.30 am.
8. Penalty charges will not be levied for the period when system is not running due to preventive maintenance of system. The period shall be duly certified by EIC.
9. Advance for installation of system (limited to 6 month charges) if required by the agency, same shall be provided to agency against Bank Guarantee of equivalent amount valid for a period of 15-months from the date of issuance of advance. This shall be deducted from his monthly rental bill. Whole advance will be recovered in

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- first year i.e. in 12-equal installments. In case vendor is unable to provide services, SJVN reserves the right to encash the Bank Guarantee or contractor has the option to deposit the advance amount in cash or any other form acceptable to SJVN.
10. After award of work agency will have to submit the Performance Guarantee of 10% of award value valid for 3-months beyond the contract period of 5-years. SJVN reserves the right to encash the Performance Guarantee if contractor fails to provide the service. The performance guarantee will be released after obtaining NOC from EIC failing which SJVN reserves the right to forfeit the same.
  11. The bidder will be required to build the required network with all the services asked in the proposal at all the locations within 12 weeks from the date of placement of order. It must be understood that the bidder has made the proposal after fully considering all such factors, which may have any bearing on the time schedule of 12 weeks.
  12. The bidder will provide all the documentations and testing reports of the material and equipments.
  13. The bidder will have to arrange for all the testing equipments and tools required for installation, testing and maintenance at his own cost.
  14. SJVNL has the right to reject any component/equipment supplied if it does not comply with the specification mentioned in supply order at any point of installation/inspections at contractor cost.
  15. SJVN has a colony coming up in DuttNagar (opposite to Power House site of Rampur HE Project, Bayal). The service will have to be extended to this colony as and when desired by SJVN. Agency may quote his additional rate in the BOQ.