



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

MATERIALS MANAGEMENT

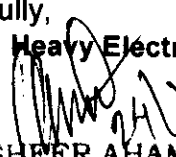
<p>TITLE:</p> <p>Procurement of Servers, Storages, Tape libraries, Precision AC, Access control system, SAN Switch, LAN switch and other accessories for ERP system in Primary and Secondary site on five year financial lease.</p>	<p>Phone: +91 431 2577645/2577331 Fax : +91 431 252 07 19 Email : rba@bheltry.co.in srchandran@bheltry.co.in Web : www.bhel.com , http://tenders.gov.in</p>
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	Reference Number: Enquiry 2651100003	Enquiry Date: 24.01.11	Due date for submission of quotation: 16.02.11
<p>You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order</p>			

BHEL requires suppliers for **Servers, storage, Tape libraries** details as per the attached technical specification as shown below .

- 01. Requirement and the Procurement process - 3 pages**
- 02. Eligibility Criteria for bidders - 2 pages**
- 03. Technical Terms and conditions - 8 pages**
- 04. Commercial Terms and Conditions - 3 pages**
- 05. Technical Specification (Requirement in the form of Check-list) - 24 pages**
- 06. Format for declaring deviations - 1 page**
- 07. No Deviations Certificate - 1 page**
- 08. Price Format - 3 pages**
- 09. Annexure -I - 1 page**
- 010. Annexure -B - 1 page**
- 011. Annexure -C (Integrity Pact) - 7 pages**
- Hardware Connectivity diagram - 1 page**

BHEL commercial terms & conditions with Technical specifications can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units) Bharath Heavy Electricals Limited) under enquiry reference "2651100003"

<p>Tenders should reach us before 14:00 hours on the due date Technical bid will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present.</p>	<p>Yours faithfully, For Bharath Heavy Electricals Limited</p>  R. BASHEER AHAMED Manager, Capital Purchase & Manufacturing Bharat Heavy Electricals Ltd., Tiruchirappalli - 620 014.
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DATA REQUIRED for HOSTING – MM SYSTEMS

DETAIL	INFORMATION
Contact Person /Address	NAME: Basheer Ahamed R/ Manager Capital Purchase/Manufacturing S Ramachandran/Senior Manager Capital Purchase/Manufacturing ADDRESS: BHEL/Trichirapalli-620014 Tamil Nadu/India
Approved By	EXECUTIVE DIRECTOR
Email	rba@bheltry.co.in srchandran@bheltry.co.in
Telephone	04312577645 & 04312577331
Fax	04312520719
Notification (Reference) No.	Enquiry 2651100003 dt 24.01.2011
Tender Title	Procurement of Servers, Storages, Tape libraries and other accessories on 5 year lease contract
Tender Type	Open Tender
BRIEF DESCRIPTION	Procurement of Servers, Storages, Tape libraries, Precision AC, Access control system, SAN Switch, LAN switch and other accessories for ERP system in Primary and Secondary site on five year financial lease.
SINGLE / TWO Part	Three Part
Published in Newspaper	Applicable
Published On	Not Applicable
Tender Value in Rs	-----
EMD Value - Rs	Applicable-Rs. 2 Lakhs.
Document Cost- Rs	Not Applicable
Date of Issue of Notification	24.01.2011
Date of Pre Bid Meet if arranged	Not Applicable
Date for Closure of Sale of Forms	Not Applicable
Completed Forms to be submitted by	On or before 14.00 Hrs on 16.02.2011
Date of Opening of Bids -DD/MM/YY	At 14.00 Hrs on 16.02.2011



ENQUIRY
(INDIGENOUS)

BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT - FOSSIL BOILERS
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)

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PHONE :2577646
GRAMS : BHARATELEC
FAX NO: 2520719
E-mail: srchandran@bheltry.co.in
Web:

429-002/A

Vendor Code :	Enquiry No	Enquiry Date	Due Date for Quotation
Vendor Name :	2651100003	24.01.2011	16.02.2011
Please quote Enquiry No, Date and due date in all correspondences. This is only a request for quotation and not an order			

Item	Description	Unit	Quantity	Delivery Quantity	Schedule Date
10	Procurement of Servers, Storages, Tape libraries, Precision AC, Access control system, San switch, Lan switch and other accessories for ERP system in primary and secondary site on five year financial lease. Procurement of Servers, Storages, Tape lib	AU	1.000	1.00	30.07.11

General Note:

Note:

1. Please submit your detailed offer in three part bid system

- 1.Part-1. EMD amount two lakh only in one separate sealed cover.
- 2.Part-ii. Technical and commercial (unpriced bid) in another sealed cover.
- 3.Part-iii. Priced offer in another separate sealed cover .

All covers duly superscribed with tender refrence and due date of opening. These covers shall be put in a single cover and addressed to us

2. PAYMENT TERMS AS INDICATED IN THE ANNEXURE B SHOULD BE ACCEPTED BY VENDOR WITHOUT ANY DEVIATION. IF ANY DEVIATION IN THIS IS TAKEN BY VENDOR THEIR OFFER IS LIABLE FOR REJECTION.

3. OFFERS

- a) DEMANDING ADVANCE PAYMENT,
- b) DEMANDING EXEMPTION OF EMD
- c)NON-ACCEPTANCE FOR PARTICIPATING IN REVERSE AUCTION
- d)WITH OFFER VALIDITY OF LESS THAN 4 MONTHS

WILL LEAD TO REJECTION OF SUBMITTED OFFER.

4. IF THE DUE DATE OF TENDER OPENING HAPPENS TO BE ON A HOLIDAY, THOSE TENDERS WILL BE OPENED ON NEXT WORKING DAYS.

5. THIS CONTRACT WILL BE MONITORED BY INDEPENDENT EXTERNAL

The offers should reach us 30 minutes before the time of opening of tenders.
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED

R. BASHIR AHMED
Master Control Engineer
Bharat Heavy Electricals Ltd.,
Thiruchirappalli-620014.



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT - FOSSIL BOILERS
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)

Page
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PHONE :2577645
GRAMS : BHARATELEC
FAX NO: 2520719
E-mail: srchandran@bheltry.co.in
Web:

2651100003 / 24.01.2011

MONITOR BY NAME, SHRI D.P.BAGCHI (IAS RETD).

6. SIGNED INTEGRITY PACT (IP) SHOULD BE FURNISHED ALONG WITH OFFER. IP SHOULD BE SIGNED BY AUTHORIZED OFFICIAL OF THE BIDDER/VENDOR CONTRACTOR. OFFER WITHOUT SIGNED IP WILL NOT BE CONSIDERED.

GENERAL NOTE FOR THE ENQ ON REVERSE AUCTION

1. BHEL RESERVES THE RIGHT TO GO FOR A REVERSE AUCTION (RA) INSTEAD OF OPENING THE SUBMITTED SEALED BID, WHICH WILL BE DECIDED AFTER TECHNICAL EVALUATION. INFORMATION AND GENERAL TERMS AND CONDITIONS COVERING RA ARE GIVEN IN Commercial terms and conditions (4.2)
2. REVERSE AUCTION IS DONE THROUGH INTERNET/E-MAIL . HENCE VENDORS SHALL MAKE THEMSELVES EQUIPPED WITH EMAIL , FAX AND INTERNET FACILITIES.
3. IN CASE OF GOING FOR REVERSE AUCTION VENDORS WILL BE SUITABLY INFORMED ABOUT THE WORKING PROCEDURES OF REVERSE AUCTION AND BHEL WILL PROVIDE ALL THE RELEVANT DETAILS TO ENABLE THE VENDOR TO PARTICIPATE.

The following documents are enclosed herewith for further action and reference.

01. Requirement and the Procurement process - 3 pages
 02. Eligibility Criteria for bidders - 2 pages
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 011. Annexure -C (Integrity Pact) - 7 pages
- Hardware Connectivity diagram - 1 page


Enclosures:

"LD clause has to be confirmed without fail."

"Payment to vendors will be made only thro E-Payment mode"

The offers should reach us 30 minutes before the time of opening of tenders.
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening. Late and delayed offers are liable to be rejected.

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED


R. BASHEER AHAMED
Manager, Procurement
Bharat Heavy Electricals Ltd,
Thiruchirappalli - 620 014.

Bharat Heavy Electricals Limited

High Pressure Boiler Plant

Tiruchirappalli



Informatics Centre

Tender Document

for

Supply of Computer Systems on finance lease

for a period of 5 years

for replacement of

existing hardware running ERP applications

29-11-2010

Procurement of new ERP hardware – 2010

Index

01. Requirement and the Procurement process	- 3 pages
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1. Requirement and Procurement process

1.1. Introduction

BHEL, Tiruchirappalli is presently running SAP R3 version 4.7 applications on Twin IBM P5 570 Servers and DS 8100 Storages in High Availability mode. Since, the rental contract for the above hardware has expired, new hardware is required to replace them. The new hardware should meet the capacity required to meet the business growth during the next five years and also the implementation of additional SAP modules. The requirement is for industry standard, state-of-the-art computer systems with associated software and accessories to run the mission critical ERP application on a 24x7 (throughout of the contract period) basis. All the hardware and software shall be highly resilient, highly performing and certified for the latest version of SAP application.

The hardware and the software will be installed in the **Primary site** in Informatics Centre and in the **Secondary site** in Building 2&4 as shown in the diagram.

The entire system is required on 5-year Financial Lease and if BHEL opts, the bidder shall undertake to provide maintenance support for two years after the expiry of the Financial Lease period.

1.2. Documents issued to the bidders

Following are the tender documents issued to the bidders.

1. Requirement and the Procurement process
2. Eligibility Criteria for bidders
3. Technical Terms and conditions
4. Commercial Terms and Conditions
5. Technical Specification (Requirement in the form of Check-list)
6. Format for declaring deviations
7. No Deviations Certificate
8. Price Format
9. Annexure 01

1.3. Amendment of Bidding Documents:

BHEL may at its sole discretion amend the Bidding Documents at any time prior to the deadline for submission of bids. However in case of such amendment, the bid submission date may be extended at the discretion BHEL.

Amendments made prior to submission of bid will be provided in the form of Addenda / Corrigendum to the Bidding Documents and will be posted on the BHEL website (<http://www.bhel.com> & <http://www.tenders.gov.in>) in Tender Notification section.

1.4. Documents to be submitted along with the Bid:

Following documents shall be submitted in the bid. The Bidder shall bear all costs associated with the preparation and submission of its bid and BHEL will in no case be responsible or liable for those costs.

The bid, all correspondence and documents related to the bid shall be in English.

Documents required for meeting the Eligibility Criteria of the bidder

1. Documents from OEM
2. Documents from the bidder

Documents related to Technical and Commercial offer

1. Acceptance of Technical Terms and Conditions
2. Acceptance of Commercial Terms and Conditions (**Annexure-B**)
3. Technical specification of the offered solution -to be filled in the Check-list format issued as Requirements in the tender document
4. Technical Brochures
5. Other Documents to support the compliance
6. Deviations, if any, as per BHEL's Format or "No-Deviations" Certificate
7. Un-priced Commercial offer as per Price Format
8. Certificates from respective OEMs of all items quoted, declaring support for a minimum period of seven years from the date of commissioning.
9. Earnest Money Deposit (EMD) of Rs.2,00,000/-

Document to be submitted for the Price Bid

1. Price in the Price Format
2. Integrity Pact.(Annexure-C)
3. Non Disclosure Agreement (As per Annexure-I)

1.5. Late Bids:

Any bid received by BHEL after the deadline for submission of bids will be summarily rejected and returned unopened to the bidder.

1.6. Evaluation of Bids:

BHEL will evaluate the bids as follows;

Stage-I: Evaluation of Eligibility Criteria of bidder

These are mandatory requirements to be met by the Bidder. Only those Bidders who meet all the requirements as per **Eligibility Criteria for Bidders** will be considered for stage II evaluation.

Stage-II: Evaluation of Technical & Commercial Bids

The EMD would be opened on the tender opening date and if EMD is not furnished the offer will be duly rejected.

Commercial and Technical bid of the bidder shall be opened and evaluated for acceptability of Technical offer, deviations and their acceptability, technical suitability, acceptance of technical and commercial terms.

BHEL's Technical Committee will evaluate the Technical bid submitted by the Bidders. During the Technical Evaluation of the bid, BHEL may ask for additional information / resources to validate the bid. These may include technical documents / white papers from OEM or third

1.0 Requirement and Procurement process

party, references, demonstration of a proof of concept or solution, visit to OEM's lab or their clients reference site, etc.

Failure to furnish all information as required or to submit a bid not substantially responsive to the bidding documents may result in rejection of the bid. If there are any deviations in the technical solution offered, without affecting the functional requirement, they shall be filled-in the Deviation format issued with the tender document and submitted along with the bid. In case of no deviations, "**No Deviation Certificate**" shall be submitted. The deviations from the tender specification shall be clearly indicated giving the reference of the specification, if any, as per format for declaring deviations. If deviation other than what is specified in the list is found, the bid will be liable for rejection.

BHEL reserves the right to accept or reject any deviation.

Bids meeting BHEL's technical and commercial requirements only will be considered for Stage-III price evaluation.

Stage –III: Evaluation of the Price Bid:

Bidders clearing the Technical and Commercial evaluation will have their Price Bids opened. The total cost of the bid will be calculated as under:

1. Bidder shall quote the quarterly rental charges (including Principle repayment, tax, interest, Support Charges, etc.) for 5 years for Hardware, Software, other items in the requirement and the estimated cost of electrical energy consumed by all hardware including Air-Conditioners supplied, as per the Price Format issued with the tender document. L1 will be evaluated based on total of quarterly rental charges including taxes and quarterly energy cost (as per price format). The energy cost will be calculated based on current Tamilnadu Electricity Board tariff rate (indicated in price format). Payment will be made only for the quarterly rental charge. No payment other than the quarterly rental charges will be made to the vendor. The cost of excess energy consumption if any per quarter beyond the quoted energy unit, indicated in the price format, at the tariff rate prevailing at end of quarter will be deducted from the quarterly rental charge.
2. The quarterly rental charges will be payable at the end of each quarter.
3. The bid having the least total cash outflow for 5 years will be considered for order placement.
4. The AMC amount shall not be more than 10% of the outright purchase value. BHEL reserves the right to opt for continuation of maintenance support for the hardware and software at end of five year lease period by way of awarding AMC contract to bidder at the rate equal to maintenance charges paid per quarter during the original lease contract. Bidder shall agree to provide the AMC service for at least two years after the expiry of the five year lease period. The Technical terms of AMC shall be same that of maintenance support during the lease period. The payment for AMC will be made quarterly at the end of the each quarter.
5. BHEL reserves the right to retain the hardware, software and other items supplied in this procurement at the end of the lease period on payment of Re. 1/- (Rupee One only). If BHEL does not retain the equipment, the vendor shall dismantle all the equipment and move it away from BHEL's premises.

1.7. BHEL's Right to accept or Reject any or all Bids

BHEL reserves the full right to accept or reject any bid or to annul the bidding process and reject all bids at any time prior to Contract award, without thereby incurring any liability to the Bidders.

2. Eligibility Criteria for Bidders

2.1. General

- 2.1.1 This bidding process is open to the manufacturers of the RISC / EPIC Servers (OEM Supplier) directly. An Authorized Partner of the OEM can also quote on behalf of the OEM supplier. The Authorized Partner shall submit documentary evidence in this regard, failing which their offer will be rejected.
- 2.1.2 Maximum of 01 (One) bid is allowed for each OEM of the Server, either directly OR through OEM's Authorized Partner.
- 2.1.3 There can be only 1 bid from each Bidder.
- 2.1.4 Bidders are required to quote for all the items of the Tender Enquiry specified in the technical specification (Requirement) document and incomplete offers will be rejected.
- 2.1.5 Relevant portions, in the documents submitted in pursuance of eligibility criterion shall be highlighted. If the offer is not accompanied by all the documents in **2.2 Eligibility Criteria**, the same would be rejected.
- 2.1.6 Undertaking for subsequent submission of any of the documents in **2.2 Eligibility Criteria** will not be entertained under any circumstances.
- 2.1.7 BHEL reserves the right to verify / confirm all original documentary evidence submitted by vendors in support of the eligibility criteria. Upon verification, evaluation / assessment, if any information furnished by the bidder is found to be false / incorrect, their total bid will be rejected and no correspondence on the same shall be entertained.

2.2. Eligibility Criteria:

2.2.1. For the OEM of the RISC / EPIC Servers:

- 2.2.1.1. Must be a manufacturer of UNIX based Server on RISC or EPIC architecture. Must submit self certificate to this effect from the OEM's authorized signatory.
- 2.2.1.2. Must have supplied the server, which is currently running, based on class of processors or its predecessor for SAP applications for minimum of 50,000 SAPS with SAPS rating specified Technical requirement, in an order for single site of a company in India during the last 03 (Three) years. Bidder must submit documentary evidence in support of this.
- 2.2.1.3. The OEM must have executed at least 2 such orders in the last 5 years having total lease / outright value of minimum Rs 10.00 crores in each order. OEM shall submit documentary evidence to support this.
- 2.2.1.4. Self certified document-indicating details of customer (Name, Address, Contact person, Phone and Email), supplied server details like the CPU, OS and the SAPS rating of the hardware delivered to the customer. Order copies along with SAPS rating certificate shall be submitted.
- 2.2.1.5. If OEM is the bidder, then OEM must undertake the complete responsibility of supply and commissioning of the hardware, software and other equipment, i.e. the entire scope of work of this tender.

2.2.2. For the OEM's Authorized Hardware Partner:

- 2.2.2.1. Must be an Authorized partner of the OEM for the products quoted for a minimum of 12 months. Submit certificate from the OEM to this effect.
- 2.2.2.2. Must have annual turnover of minimum Rs 100.00 crores per annum for the last 3 years. Attested copies of Balance Sheets of the last three years to be submitted as proof.
- 2.2.2.3. Must have registered office in India. Documentary proof shall be submitted.
- 2.2.2.4. Must have executed at least 2 (two) orders on lease in the last 5 years in India. The cumulative cash outflow should have been at least Rs. 10.00 crores in each order. Authorized partner shall submit documentary evidence to support this.
- 2.2.2.5. All the Eligibility Criteria mentioned in 2.2.1 **For the OEM of the RISC / EPIC Servers** shall also be met by the OEM of the bidder. A declaration duly signed by the authorized signatory of the OEM in OEM's letter head to this effect is to be submitted by the bidder.

2.3. Purchaser's Right to accept or Reject any or all Bidders:

BHEL reserves the full right to reject any bidder based on other reasons deemed fit but not mentioned above.

3. Technical Terms and Conditions**3.1. Scope of Work**

- 3.1.1.** The vendor shall Supply, Install, Integrate, Carry out Tests, Commissioning of Servers, Storage, Backup Solution, other related items including Operating Systems and other software at Primary Site & Secondary Site of BHEL Trichy complex as per technical specifications & requirements of this tender. Movement inside factory, including lifting to requisite floor is responsibility of vendor.
- 3.1.2.** The vendor shall supply and install all cables, adapters, power cords and any other interconnects required by the systems to meet the specification. The vendor shall carry out all electrical and systems interfacing pertaining to equipment at Primary site and Secondary Site as per the best international standards and practices. Laying dark cable (dedicated fibre) between primary site and secondary site in two different routes, approximately in 1.5 KMs each route, is also in the scope of the vendor.
- 3.1.3.** Arranging requisite tools, measurement equipment and resources required for installation and commissioning of the hardware, software and other equipment is the responsibility of the vendor.
- 3.1.4.** BHEL may shift the equipment in different site/location during the lease period. The vendor shall carryout the shifting activity at free of cost, at least once during the lease period.
- 3.1.5.** All software to be provided as part of the solution should be licensed to "Bharat Heavy Electricals Limited -HPBP". All documents, manuals, administration manuals and software CD/DVDs shall be submitted to BHEL before commissioning the systems. All software shall come with at least two sets of CDs/DVDs, etc.,
- 3.1.6.** The vendor shall ensure that none of BHEL's equipment/structure/setup gets damaged during commissioning and operations of the supplied equipment. Any damages, if caused to BHEL's property due to Vendor's activity/negligence or the operations of the equipment, shall be rectified, repaired by the vendor at their own cost.
- 3.1.7.** Maintenance of the hardware, software and other equipment throughout the lease period as per the service level agreement.
- 3.1.8.** The products those have reached the end-of-life need not be offered.
- 3.1.9.** Insurance of the hardware, software and other equipment during the duration of the contract.

3.2. Installation and Commissioning:

The Vendor shall install the hardware, software and other equipment as per the requirement. The vendor shall demonstrate the following fail-over scenarios as part of the installation and commissioning:

- 3.2.1.** Fail-over test of a partition or a Server.
- 3.2.2.** Failover of clustered partitions and applications and their automatic restoration.
- 3.2.3.** Backup and Restore as defined in the technical specifications.
- 3.2.4.** Clustering, High availability features.
- 3.2.5.** Synchronous and asynchronous SAN based data replication between primary and secondary site.
- 3.2.6.** Backup and Restore options.

- 3.2.7. Fail-over of a Server with multiple partitions.
- 3.2.8. Failure of each SAN switches and sustenance of service.
- 3.2.9. Fail-over of Storage.
- 3.2.10. Fail-over of tape library.
- 3.2.11. Fail-over of entire Primary / secondary site.
- 3.2.12. Successful running of SAP ERP system and sub-systems and applications in other partitions after installation of SAP ERP software on respective servers with acceptable performance.
- 3.2.13. Integration with BHEL's existing Intranet with proper security.
- 3.2.14. Demonstration of RAS features.
- 3.2.15. Any other scenario not covered above but envisaged in the BCP plan.

If the Vendor fails to demonstrate these scenarios, supplied equipment will be rejected without any cost implication to BHEL.

3.3. Activities related to Migration of ERP (SAP) Applications:

As these new servers are bought for migrating SAP-ERP applications running in old servers, the vendor shall carry out the following activities required for migrating BHEL's ERP applications from SAP R3 4.7 to new system.

- 3.3.1. Installation of required OS level Patches, updates and file-sets as recommended by SAP.
- 3.3.2. Creation of required file-systems.
- 3.3.3. Cluster testing after SAP migration.
- 3.3.4. OS level tuning for better performance.

3.4. Documents to be submitted during Commissioning

On successful installation of the equipment and configuration of individual components and the solution as a whole, the Vendor shall submit the following documents as part of the commissioning:

- 3.4.1. Newness certificate for all items.
- 3.4.2. Configuration detail for each server – name, IP address, OS version, details of Partitioning, etc.
- 3.4.3. Network diagrams / cabling scheme.
- 3.4.4. Security scheme for entire solution.
- 3.4.5. Clustering and failover details.
- 3.4.6. Details of SAN access, point in copy, replication, zoning, etc.
- 3.4.7. Details of Backup solution and Tape Library systems.
- 3.4.8. Performance Bank Guarantee
- 3.4.9. Insurance documents for all the item

On completion of the installation, commissioning and submission of the above documents, the Vendor shall carry out Performance Guarantee Tests of the supplied hardware & software as given below:

Performance Guarantee Tests (PG Tests):

- 3.5.1. The Performance Guarantee Test shall start after installation and commissioning of all the Hardware & Software at primary and secondary sites. The Performance Guarantee Tests (and repeats of such tests limited to a maximum of two) shall be the primary responsibility of the Vendor, but shall be conducted with the full cooperation of the BHEL to ascertain whether the supplied System meets the standard of performance and complete functionality as specified by BHEL.
- 3.5.2. The performance test will be done simultaneously for all the servers with respective SAP software modules installed. After successful completion of installation and commissioning, PG test shall be conducted for ascertaining the availability for a minimum period of 14 days continuously. The Performance Acceptance Tests shall be conducted by Powering Up and continuous operation of all the systems on a 24x7 basis to ascertain that all components of the solution are working in the desired fashion individually and together.
- 3.5.3. All the systems together shall give an uptime of **99%** during the test period. The test duration time shall be exclusive of external power failure time and any scheduled down time by BHEL. The system shall be considered as "available", if all the processors, total installed memory; all hard disks (internal & external), DAT, DVD, switches and all other supplied equipments are in service with network and external storage. Any hardware component failure in RISC / EPIC servers has to be rectified / replaced without bringing down / restarting any partitions or servers.
- 3.5.4. If the system is found to be lacking in meeting Performance Guarantee Test, the test time will be extended by 7 days. If the equipment / system does not provide the required uptime even after 2 extensions, the supplied equipment is liable to be rejected. Downtime will not be counted, in case the failure is due to any other reasons not attributed to the Vendor.
- 3.5.5. All BCP tests shall be carried out as a part of PG test. It shall also be demonstrated that all the traffic between application servers and DB/CI servers goes through the dedicated network. In case of any disturbance in the user network, the server shall continue to run without any failover.
- 3.5.6. Beyond the acceptable limits of PG parameters, the supplied equipment is liable to be rejected.

3.5. Commissioning Certificate

BHEL will issue a **Commissioning Certificate** on successful completion of Performance Guarantee Tests of all the Hardware & Software.

3.6. Lease Agreement (LA)

If the Vendor wants a Lease agreement, it can be executed, in the format specified by BHEL-Trichy.

3.7. Training:

3.8.1. Training at BHEL, Trichy premises:

The Vendor shall provide following training at BHEL, Trichy premises on the procured servers. The training course shall be structured and supported by programmed illustrations, video, charts, etc. The training shall be conducted using experienced certified personnel only. The Vendor shall provide extensive lecture notes, handouts and other

3.0 Technical Terms and Conditions

training documentations. The boarding and lodging of trainer faculty will be responsibility of the Vendor.

- ✓ User Level Training for a minimum period of 2 days for 10 persons in server operations, and ensure familiarity to enable them to provide and use the system efficiently.
- ✓ System Administration for 5 persons for minimum period of 10 days in Servers, Storage, Backup Solution, Replication, DR Plan, Operating System etc.

3.8.2. Training at external certified training centres / laboratories:

- ✓ Advanced System Administration Training for two BHEL personnel at the OEM's training centers located in India/abroad. In case of outstation training, travel, boarding and lodging of trainees will be responsibility of BHEL.
- ✓ **Certified Business Continuity Professional (CBCP) from DRII** or DRII authorized partner to 4 BHEL officials.

3.8. Business Continuity plan:

Vendor shall submit a detailed BCP plan at the time of implementation. A detail restoration plan to startup a failed site shall be envisaged. All the necessary resources, software, program, etc. required to carry out the Business Continuity Plan shall be included in the scope of supply. The general guidelines are as follows:

S. No.	Disaster Recovery Management Solution
1	A detailed plan and procedure for business continuity in the event of failure of Primary / Secondary site.
2	A detailed restoration plan to restore to original configuration after the failed site is set right.
3	Two BCP drills to be performed during the entire Lease Period (after commissioning). The time and duration of BCP drills shall be mutually agreed.
4	One full BCP drill is to be performed during Performance Guarantee Test. (Before commissioning)

BCP Drill : Activities described in the BCP plan are to be carried out periodically to ensure preparedness to meet any risks.

3.9. Special Clauses:

- 3.9.1. Make, Model, Product No and Details of each Item must be mentioned clearly.
- 3.9.2. All hardware and software supplied shall be **NEW** and newness certificate from OEM shall be furnished.
- 3.9.3. BHEL will not be responsible for any misinterpretation or wrong assumption by the vendor.
- 3.9.4. All the Items must be supplied in full and complete.
- 3.9.5. All components shall be rated for 24x7x365 operation.
- 3.9.6. The Vendor shall provide all other hardware and software items that are not explicitly mentioned herein, but are required by the Vendor to full-fill the intended specifications and to meet the functionality mentioned in the bid.
- 3.9.7. The indicated specification parameters are the minimum requirement and item with higher rating will be acceptable.

- 3.9.8. No item shall be offered whose end-of-sale has been declared by the OEM or has been declared to be under phase out.
- 3.9.9. Proper documentation, labeling and tagging shall be carried out for all the equipments used in the entire landscape for easy management and maintenance.
- 3.9.10. The following documents shall be provided for all hardware, software and other equipment
 - i) User manual.
 - ii) Administrator Manual.
 - iii) Complete documents for maintenance.
 - iv) Error Handling and troubleshooting manual.
 - v) Source Code for scripts used.
 - vi) Documenting proof that all software Licenses are in the name of BHEL.
 - vii) Safety and Standard Operating Practices manuals

3.10. Service Level Agreement (SLA)

- 3.10.1. As the equipment will be used for running mission critical ERP application, the vendor shall provide an uptime of 99% on all hardware & software products on monthly basis.
- 3.10.2. If the availability of the systems, or part thereof, is below 95% on monthly basis, continuously over a period of 3 months, BHEL reserves the right to terminate the contract in full, without any cost implication to BHEL.

3.11. Penalty for SLA Non-Conformance:

At the end of each quarter, downtime will be calculated for all the hardware and software. Downtime will be calculated based on uptime on monthly basis. The deductions will be made as per the following formula:

Deduction (D) = (downtime in minutes (d) X rental per minute (r) X multiplication factor (f))

Where Multiplication Factor is given below

For Uptime > 99.00 Multiplication Factor is 0.00
For Uptime between 98.00 and 99.00, Multiplication Factor is 2.00
For Uptime between 97.00 and 98.00, Multiplication Factor is 5.00
For Uptime between 96.00 and 97.00, Multiplication Factor is 8.00
For Uptime between 95.00 and 96.00, Multiplication Factor is 12.00
For Uptime below 95.00, Multiplication Factor is 15.00

The downtime will be recorded at Purchase order item level. Even In case of failure of a component in an item, the deduction will apply to the whole item. If the failure of an item results in of major service outage or affects the services provided by other items also, then the deduction will apply to all items affected by the failure.

3.12. Availability of Spares:

Sufficient stock of critical spares shall be maintained at the Primary and Secondary sites at all times to ensure the uptime.

3.13. Terms of Payment:

Lease period will start only after successful installation and commissioning of all hardware and software products as per the requirement and the issue of the commissioning certificate. Quarterly lease rental charges (after deduction for any SLA non-conformance) become payable at the end of each quarter.

Vendor shall submit following documents for processing the bills:

- 3.13.1. Invoice in triplicate.
- 3.13.2. SLA reports for the quarter (certified by the System Administrator)
- 3.13.3. Energy consumption for the quarter (certified by the System Administrator)
- 3.13.4. Document proof for Software license renewal as applicable.

3.14. Warranty & Support:

- 3.14.1. All the supplied equipment / systems (hardware/software) shall be covered under a Comprehensive On-Site Warranty & service support for 5 (Five) years. The period shall start from the date of successful commissioning of the Equipment / System. Warranty & Support shall be delivered directly by the OEM for Servers, Storage and Backup Systems. In case of authorized partner being the Vendor, certificate from OEM should be attached stating that the OEM will provide support directly during the warranty period, the posting of the OEM's Engineer, replacement of spares, etc. The warranty & support from OEM shall ensure the uptime requirement of 99%.
- 3.14.2. If any document / manual / CD supplied by the Vendor is found to be inadequate / incomplete within the period of the contract, the supplier shall replace/complete such document/manual/CD at their cost within 15 days' time. The document / manual / CD released with upgrades and updates shall be supplied free of cost as and when they are released.
- 3.14.3. On-Site Engineers
 - 3.14.3.1. At least one qualified, trained and certified on-site engineer in the respective Server and Storage Management from OEM with at least 3 years of experience on such UNIX servers, storage and backup solutions shall be posted.
 - 3.14.3.2. The OEM engineer shall do health monitoring, performance monitoring, capacity monitoring & critical parameter monitoring of the servers on daily basis. He shall also do diagnostics, fault checking, hardware & software troubleshooting, call logging, spares replacement and also carry out regular backup of the data and critical system files. He shall also be responsible for ensuring uptime of all other items supplied as part of this order like Precision AC, Biometric access control system, SAN, LAN switches etc.
 - 3.14.3.3. The Vendor shall also post on-site operations engineers to run the Computer systems during round-the-clock 3-shift operations of both the Primary and the Secondary site. Three Engineers are required for each site to support the three shift operations. These engineers shall be at least Diploma holders in Computer Science/Communications with one year experience.
- 3.14.4. Vendor shall arrange for boarding, lodging and logistics of onsite OEM engineer and operations engineers.
- 3.14.5. If the OEM engineer posted goes on leave for more than a day with permission from BHEL, then another equivalent engineer shall be posted till he returns back.
- 3.14.6. If a change of On-site OEM Engineer is requested by BHEL, citing reasons, the vendor shall arrange a replacement the engineer within 02 (Two) weeks having the same or higher competence level.

3.15. Warranty shall cover the following:

- 3.15.1. Repair / Replacement of faulty / defective Hardware and other supplied items inclusive of supply of all types of spare parts etc. (Including batteries)
- 3.15.2. All Software Patches, Upgrades, updates, Service Packs, etc. of the Operating System and all other Software supplied by the OEM must be made available free of

- cost during the entire warranty period (5 years). Software subscription and any other subscription required during entire lease period.
- 3.15.3. Installation / Re-Installation / Maintenance and update patches, upgrades, updates and fixes of OS, System software and other software supplied in the contract.
 - 3.15.4. Licenses shall be perpetual and made current whenever the license policy of the Software changes during tenure of lease.
 - 3.15.5. Any software patches, upgrades or modules required to run the latest version of SAP package during entire lease period.

3.16. Support shall include the following

- 3.16.1. Monitoring, logging and reporting on Daily/ Weekly/ Monthly basis as required by BHEL in the specified formats the Performance and operations of the Servers, storages and the back-up system on 24x7x365 basis.
- 3.16.2. Periodic health checks of the systems using diagnostic tools and implementing proactive rectification measures.
- 3.16.3. Troubleshooting Servers, OS, SAN and backup related issues.
- 3.16.4. Analyzing and reporting all system related issues.
- 3.16.5. Managing users, roles and passwords of all the relevant subsystems of Servers, OS, Storage etc.
- 3.16.6. Liaison with various vendors, OEMs, agencies and service providers for equipment maintenance & related work.
- 3.16.7. All incidents must be documented and logged as per the format specified by BHEL.
- 3.16.8. Any change in the IP Scheme, if required, limited to all the equipments installed at Primary site & Secondary site shall be done in consultation with BHEL's Network Manager.
- 3.16.9. Server Administration Functions include following activities for the ERP Environment in consultation with BHEL Personnel.
 - 3.16.9.1. Operating System tuning.
 - 3.16.9.2. OS and software Re-installation in the event of system crash/failures
 - 3.16.9.3. Configuring file systems, volumes and apportioning disk space.
 - 3.16.9.4. Ensure proper configuration of server parameters.
 - 3.16.9.5. Periodic System performance tuning for optimizing the SAP performance.
 - 3.16.9.6. Addition, deletion, re-configuration of devices, additional users and printers etc.
 - 3.16.9.7. Implementing security patches on servers at all levels.
 - 3.16.9.8. Orderly start-up and shutdown of servers as per laid down procedures.
 - 3.16.9.9. Security management – Configuring account policy, access rights, password control as per BHEL's security policy.
 - 3.16.9.10. Scheduling and optimizing all critical services run on the hardware.
 - 3.16.9.11. Maintain lists of all system files, root directories and volumes.
 - 3.16.9.12. Resolving all server related problems.
 - 3.16.9.13. Escalating unresolved problems to ensure resolution as per the agreed SLA

3.17. Storage Administration

- 3.17.1. Management of storage environment to maintain performance at optimum levels
- 3.17.2. Regular backups of Storage software.
- 3.17.3. Management of the storage solution including, but not limited to, management of space, volume, RAID configuration, configuration and management of disk array, SAN fabric / switches, tape library etc. as per mutually agreed storage management policy.

3.18. Backup and Restore

- 3.18.1. 24x7x365 support for file and volume restoration requests.
- 3.18.2. Must take regular Backup of operating system, database and application as per stipulated policies and time schedule.
- 3.18.3. Must conduct periodic restore operations of backed up data.
- 3.18.4. Regular maintenance of all the media and the backup / storage devices.

3.19. The offline support shall have:

- 3.19.1.** 24x7 National telephonic support.
- 3.19.2.** Access to raise technical assistance request at hardware vendors / supplier website.

The above Terms and Conditions are accepted.

Date:

(Signature and Seal of the Vendor)

4. Commercial Terms and Conditions

The Bidders shall submit the offer in **THREE INNER ENVELOPES** as indicated below which shall be sealed in one outer envelope.

Envelope I : This sealed envelope should contain the required EMD amount of **Rs.2,00,000/-**

Envelope II : This sealed envelope should contain all the copies of technical bid together with un-priced commercial bid. This envelope should be clearly marked "**Part II - Technical and commercial bid**", indicating Enquiry No., Due Date and Address & Reference of the Bidder.

Envelope III : This sealed envelope should contain **price details**. This envelope should be clearly marked "**Part III - Price bid**", indicating Enquiry No., Due Date and Address & Reference of the Bidder.

All the three envelopes (Part I,II & III) shall be put in one cover, duly sealed, super scribing as Part I ,Part II and Part III of Enquiry No., due date of opening and the address and reference of the Bidder.

The above offer should reach this office on or before the due date by 14.00 Hrs (IST). Late offers will not be considered.

Tender should not be addressed to any Individual's name but only by designation to:

MANAGER / CAPITAL PURCHASE / MFG
4th Floor-24 Building
BHARAT HEAVY ELECTRICALS LIMITED
HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620 014
TAMIL NADU, INDIA

Tenders should be free from **CORRECTION AND ERASURES**, Corrections if any, must be attested. All amount shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

Offers should be in **ENGLISH** and accompanied by detailed technical literature, catalogue and detailed dimensional drawings in **ENGLISH** or otherwise, the offers will not be considered.

4.1 OPENING OF TENDERS

The **part I** – EMD would be opened on the tender opening date and if EMD is not furnished the offer will be duly rejected.

The **Part II**- Technical & commercial bid would be opened on the Tender opening date.

The **Part III** - Price bid of Technically suitable Bidders alone would be opened. The Technically suitable Bidders would be informed about the tender opening date.

Clarifications if any required by BHEL for Technical evaluation would be sought from Bidders before opening of Part III - price bid.

4.2 BHEL reserves the right to go for a Reverse Auction (RA) instead of Opening the submitted sealed price bid, which will be decided after techno-commercial evaluation. Information and general terms and conditions governing RA are given below.

4.3 GENERAL TERMS AND CONDITIONS OF RA

Against this enquiry for the subject item/system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING ON INTERNET.

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
3. BHEL will inform the vendor in writing in case of reverse auction, the details of Service Provider to enable them to contact & get trained.
4. Business rules like event date, time, Start price, bid decrement, extensions etc. also will be communicated through service provider for compliance.
5. Vendors have to fax the Compliance form in the prescribed format (provided by Service provider) before start of Reverse auction. Without this, the vendor will not be eligible to Participate in the event.
6. BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Netcash outflow to BHEL" considering Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the vendor to enable them to fill-in the price and keep it ready for keying in during the Auction.
7. Reverse auction will be conducted on scheduled date & time.
8. At the end of Reverse Auction event, the lowest bidder value will be known on the network.
9. The lowest bidder has to Fax the duly signed Filled-in prescribed format as provided on case-to-case basis to BHEL through Service provider within 24 hours of Auction without fail.
10. Any variation between the on-line bid value and the signed document will be considered as sabotaging the tender process and will invite disqualification of vendor to conduct business with BHEL as per prevailing procedure.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
12. BHEL reserves the right to negotiate if need be, with the L1 vendor of the Reverse Auction.

4.7 Liquidated damages : It is clearly understood among the parties to the contract the " **Time is the essence of the contract** ". Therefore, the delivery of the goods specified in the purchase order should be made within the time prescribed. Where the seller supplies or despatches the goods, beyond the delivery period specified the purchaser will have no obligation to accept the goods. If accepted liquidated damages at the rate of 1/2% of the value of goods delayed for each week of delay subject to a maximum of 15% of the order value will be levied. Liquidated damages @ 1/2% per week subject to a maximum of 15% of the Erection Charges shall be applicable for delay in the Period for completion of the Retrofitting / Reconditioning work

4.8 Risk purchase : Alternatively the purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or despatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute therefor. The supplier shall be liable for any loss which the Purchaser may sustain by reason of such risk purchases.

4.9 Inspection & Testing: All goods shall be subject to inspection by BHEL or its authorized representatives at supplier's works or at BHEL stores or at any other place in India indicated by BHEL as the case may be. The supplier will not charge for the facilities provided for inspection of goods. In case of machine tools, the machine would be inspected and proved at supplier's works prior to dispatch however, final inspection and acceptance of the machine will be carried after installation of the machine at BHEL, Tiruchirappalli.

4.10 Earnest Money Deposit shall be payable as per the instructions furnished in the **Annexure-B**. Otherwise the offer will be rejected.

4.11. Ethical Standard:

Bidders are expected to observe the highest standard of ethics during the procurement and execution of this Contract. In pursuit of this policy, BHEL will reject a proposal for award if it determines that the Bidder being considered for award has engaged in corrupt or fraudulent practices in competing for the Contract. For the purposes of this provision, the terms set forth below are defined as follows:

- a) “**Corrupt practice**” means the offering, giving, receiving, or soliciting of anything of value to influence the action in the procurement process or in Contract execution; and
- b) “**Fraudulent practice**” means a misrepresentation of facts in order to influence a procurement process including collusive practices designed to establish bid prices at artificial, non-competitive levels to deprive the benefits of competition to BHEL.

By signing the Bid Forwarding Letter, the Bidder represents that for the software it supplies, it is the owner of the Intellectual Property Rights. Willful misrepresentation of these facts shall be considered a fraudulent practice without prejudice to other remedies that BHEL take.

4.12. Integrity Pact:

The bidder shall sign an Integrity Pact, to comply with the requirements of the Transparency International Limited (TIL) and the Central Vigilance Commission (CVC) guidelines to ensure an ethical and corruption-free business environment. The proforma for the Integrity Pact is attached as Annexure-C.

4.13. Non Disclosure Agreement:

The bidder shall sign a Non Disclosure Agreement (NDA) with BHEL. By signing the NDA, the bidder agrees not to disclose any confidential information, business or proprietary, as covered by the agreement. The proforma for the Non Disclosure Agreement is attached as Annexure-I.

4.14. Delivery Schedule:

The Bidder shall be responsible for timely delivery, installation & commissioning of all the hardware & software given in the scope of supply/work at the BHEL's premises. All the hardware & software shall be delivered and successfully installed and commissioned within 4 months (120 days) from the date of placement of order.

If the delivery is delayed due to reason not attributable to BHEL, BHEL reserves the right to go for alternative procurement.

4.15. Income Tax Depreciation:

Income tax depreciation will be claimed by BHEL.

4.16. Delivery & Project Implementation Schedule:

All the items (hardware & software) shall be supplied and successfully installed / commissioned as per scope of work in all respect within 140 days (One Hundred and forty days) after placement of order or issue of Letter of Intent / Work Order / Fax Order. Failure in delivery or installation within 140 days, will entail Late Delivery Charges as per the LD clause of the contract. (LD will be based on contract value affected by the non-supply of delayed items)

5. Technical Specification (Requirement)

BHEL Trichy is having **Primary Site** in Informatics Centre and **Secondary Site** in 2&4 building (1.5 km apart) within the same campus. Computer systems are required as per the specification mentioned in this document. Secondary site will have identical set up as primary site and during normal operation they will be sharing load. (See attached diagram). It will be configured to have storage based synchronous data replication between primary site and secondary site in order to have a near zero data loss in case of failure. Secondary site will be connected to the primary site using dedicated, redundant optical fibre links through which data will be synchronously replicated.

The SAN storage must be capable of both synchronously and asynchronously replication.

The configuration of the servers at Primary site and Secondary site are as follows:

Table - 1: Primary Site Server

Partition No.	Partitions (for running ERP (SAP) applications)	Capacity required in SAPS	Minimum Internal Disk/SAN Boot for OS	I/O Ports				HA Cluster
				FC	Ethernet			
					D-LAN	L-LAN	HB	
1	ERP Production (DB and Central Instance server)	32,000	146*2	4	2	2	2	Yes
2	ERP Application server 1	7,500	146*2		2	2		
3	ERP Application server 2	7,500	146*2		2	2		
4	ERP Development server	4,000	146*2	2		2		
5	BI Production (DB and Central Instance server)	5,000	146*2	4	2	2	2	Yes
6	BI Application server 1	4,000	146*2		2	2		
7	BI Development server	4,000	146*2	2		2		
8	SRM Production (DB and Central Instance server)	5,000	146*2	2	2	2	2	Yes
9	SRM Development server	4,000	146*2	2		2		
10	XI Production (DB server)	4,000	146*2	2	2	2	2	Yes
11	Enterprise Portal (DB and Central Instance server)	5,000	146*2	2	2	2	2	Yes
12	Enterprise Portal Development server	4,000	146*2	2		2		
13	Backup Server1	5,000	146*2	4	2	2	2	Yes
14	ERP Test Server 1	5,000	146*2	4	2	2	2	Yes
15	Staging Server 1	4,000	146*2	4	2	2	2	Yes
16	Staging Server 2	4,000	146*2	4	2	2	2	Yes
	Total	104,000	32 Disks	38	24	32	18	
	In case of Virtual I/O, No. of ports required	104,000	16 FC cards (In case of SAN boot)	28	18	24	14	

Table - 2: Secondary Site Server

Partition No.	Partitions (for running ERP (SAP) applications)	Capacity required in SAPS	Minimum Internal Disk/SAN Boot for OS	I/O Ports				HA Cluster
				FC	Ethernet			
					D-LAN	L-LAN	HB	
1	ERP Application server 3 (F/o ERP DB & CI server)	32,000	146*2	4	2	2	2	Yes
2	ERP Application server 4	7,500	146*2		2	2		
3	ERP Application server 5	7,500	146*2		2	2		
4	ERP Quality Server	4,000	146*2	2		2		
5	BI Application server 2 (F/o BI DB & CI server)	5,000	146*2	4	2	2	2	Yes
6	BI Application server 3	4,000	146*2		2	2		
7	BI Quality Server	4,000	146*2	2		2		
8	SRM Application server (F/o SRM DB & CI server)	5,000	146*2	2	2	2	2	Yes
9	SRM Quality Server	4,000	146*2	2		2		
10	XI Development & Quality (F/o XI DB & CI server)	4,000	146*2	2	2	2	2	Yes
11	Enterprise Portal Application server 1 (F/o EP DB & CI server)	5,000	146*2	2	2	2	2	Yes
12	Enterprise Portal Quality server	4,000	146*2	2		2		
13	Backup Server 2	5,000	146*2	4	2	2	2	Yes
14	ERP Test Server 2	5,000	146*2	4	2	2	2	Yes
15	Staging Server 3	4,000	146*2	4	2	2	2	
16	Staging Server 4	4,000	146*2	4	2	2	2	
	Total	104,000	32 Disks	38	24	32	18	
	In case of Virtual I/O, No. of ports required	104,000	16 FC cards (In case of SAN boot)	28	18	24	14	

Legend:

FC: Fibre card, **D-LAN:** Dedicated LAN, **L-LAN:** Local LAN, **HB:** Heart Beat
The IO adapters required for operating system disks are in addition to the requirement shown above.

5.1 Specifications of UNIX Servers: 2 Nos.

Table - 3: Specifications of UNIX servers are defined below:

S. No.	Item or Parameter	Specification	Compliance (Yes/No)	Document Reference/ Remarks
1	Servers	Monolithic server per site shall be offered. (It shall be possible to configure the system in each site as a single partition).		
		All servers shall be capable of being partitioned; each partition shall have its own operating system instance, host name and IP address.		
		Both servers at Primary and secondary site shall be of the same Make and Model.		
		Specify the make and model.		
		All servers quoted must have the same RISC/EPIC processor.		
		The future roadmap of the Server needs to be submitted.		
		All the servers shall be capable of running all versions of 64-bit SAP R/3 4.7 to ECC 6.0 (Unicode) under 64-bit Unix OS with Oracle 10g RDBMS or later versions.		
		Servers shall be allocated with all resources as per sizing sheet. Higher capacities are acceptable.		
2	Processors	CPUs shall be 64 Bit RISC/EPIC with SMP architecture.		
		The CPU's future roadmap needs to be submitted.		
3	Processor Performance	SAP ECC 6.0 Unicode EHP4 Sales & Distribution SD 2 Tier SAPS Benchmark for the offered server/processor under Oracle 10g from SAP website, public domain (http://sap.com/benchmark) will be taken for evaluation. If the SAPS bench mark for the above environment is not available in the SAP website, the procedure for arriving at the SAPS rating of the offered for evaluation purpose is given below. The published benchmark of a processor belonging to the same series will be taken as a reference benchmark. The TPC benchmarks of this reference processor and offered processor will be taken from TPC website. From the reference benchmark, the SAPS rating of the offered processor will be computed in the same ratio of their performance in the TPC benchmark. For converting from a non-unicode to Unicode benchmark, a multiplication factor of 0.77 (1/1.3) will be used. If database other than Oracle10g has been used in the benchmarking, then the SAPS value will be reduced by 10%.		
4	Main Memory	At least 16 GB per core or 8 GB per 1000 SAPS of DDR3 memory shall be offered.		
		Specify the maximum RAM scalability for the server offered.		
5	Partitions	Each SAP instance in the production system should run in an independent partition having its own		

5.0 Technical Specification

		operating system instance with resources dedicated to it as per specified in Table-1 . All server partition must contain at least one processor core and shall have integral number of cores.		
		It should be possible to assign processors and memory logically to any partition or switch processors and memory between partitions without reboot of source or target partitions or applications.		
		Each partition shall have at least the resources allocated as per the sizing specified in Table-1 . At any point of time, the partition should not run with lesser resources than the minimum specified for that partition.		
		Each partition shall be able to run same or different versions of OS kernel, patch levels, etc, independently.		
		Each Partition shall have its own dedicated adapters/controllers.		
		Any configuration change in one partition shall not affect any other partition.		
		Any fault in one partition shall not bring the entire system or other partitions down.		
		The OS of each partition shall be upgradeable separately and independently without affecting the other partitions.		
		Each partition shall have the capability to start-up and shutdown independently without affecting any other partition on the same server.		
		It shall be possible to create at least 20 partitions in the offered server when required. BHEL will provide reconfiguration details with the available resources.		
6	I/O Adapters	All adapters should be PCI/X or PCI/E.		
		All FC ports shall be of 8 Gbps speed with multi path I/O trunking and automatic load balancing (as per Table-1) for each server/partition.		
		All Ethernet Adapters shall be of 10/100/1000 Mbps auto sensing (as per Table-1) for each server / partition in automatic Fail-over / Redundant / trunking / Link aggregation and auto switching mode.		
		Separate Adapters for Management LAN, SAN boot, etc, shall be provided.		
		Functional (Ethernet, Fiber Channel & SCSI/SAS) redundancy at an adapter level shall be provided for each partition.		
		If multiple port/function adapters are used, the cumulative bandwidth of the adapter shall be less than 70% of the I/O slot bandwidth.		
		The server will be connected to SAN storage system using fibre channel links. Required compatible Fibre Channel Host Bus Adapters (minimum 8Gbps) with multi-path and automatic load balancing on the server side shall be provided to connect the storage system with 100%		

5.0 Technical Specification

		<p>redundancy. All the hardware and software required for this shall be provided. Multiple fibre cards with multi-pathing capability and automatic load balancing at HBAs on servers shall be supplied.</p>		
		<p>USB/Serial Ports shall be supplied as per the standard availability in the model offered</p>		
7	Disk and Media drives	<p>All partitions shall be booted through the SAN or booted using Ultra III SCSI / SAS / Fibre Channel internal disk (internal disk each with 146GB, 15K RPM) minimum 2 x 146GB 15K RPM. In case Boot from SAN is offered, FC ports on each partition which connect the SAN disks through two independent controller from Server to SAN disk Array.</p>		
		<p>Internal Disks or the SAN disk used for OS shall be mirrored.</p>		
		<p>There shall be at least 3 (three) DVD ROM drives in the server. These drives can be independently configurable to any partition.</p>		
		<p>There shall be at least 3 (three) LTO Generaion 5 drives in the server. These drives can be independently configurable to any partition.</p>		
		<p>Each server shall have independent SCSI/SAS/FC adapters required to connect each of these drives.</p>		
		<p>Suitable disk management software including Volume Manager to dynamically manage these drives shall be supplied.</p>		
8	Operating System	<p>Latest version of 64-bit OEM Unix Operating System with latest patch level must be provided.</p> <p>It should include:</p>		
		<p>Logical Volume Management</p>		
		<p>Journalled File System</p>		
		<p>Mirroring Software</p>		
		<p>Shall be capable of running any version of 64-bit SAP R/3 4.7 to ECC 6.0 with unicode</p>		
		<p>Shall be capable of running 64-bit Oracle 10g RDBMS or higher version</p>		
		<p>The Unix Operating Systems shall be licensed to support unlimited users.</p>		
		<p>Partition management software having dynamic configuration feature with GUI / Web interface. Management Consoles for the same to be provided.</p>		
		<p>Software to be provided for capacity planning & logs maintaining, trend analysis and reporting.</p>		
		<p>Software to be provided for intelligent workload & partition replacement across a virtualized environment.</p>		
		<p>Software and licenses to be provided for resource allocation / de-allocation to partitions</p>		
9	Cluster/High availability	<p>The cluster solution must be able to provide fail-over to the other system for any failure arising in one of the system due to:</p> <ul style="list-style-type: none"> ➤ Hardware ➤ Operating System ➤ Server failure ➤ Partition Failure 		

5.0 Technical Specification

		<p>➤ Any other failure which causes the server / partition to fail.</p>		
		All necessary software, SAP agents, oracle agents & hardware components for automatic high availability and seamless fail over and failback to be provided.		
		Redundant Heart beat paths shall be provided as per the diagram.		
		Cluster solution shall be OEM or SAP certified solution.		
		No committed transactions in SAP should be lost in case of failure of clustered component.		
		Once the failed system comes up they should revert back to the original configuration automatically. Option for reverting back manually should also be available.		
		The proposed solution of implementing the fail-over must be explained in detail in the technical proposal along with logical diagrams.		
		The DB/CI tier servers of ECC, EP, SRM, BI modules shall be clustered using high availability clustering technology and there should not be any single point of failure in the offered solution. All necessary software agents must be provided for clustering. Support for the clustering software and all software agents must be provided. Each of the production components shall have dedicated failover mechanism. The Clustering Solution shall be as per the diagram enclosed.		
10	Oracle Software	Oracle ProC and ProCOBOL in two partitions in each Site shall be provided.		
11	Printing software	Print spool software in 2 partitions in each site shall be provided.		
		Each printing software shall have licensed for 4 printers.		
		Shall be compatible with the server OS.		
		Centralised Printing management package shall have scheduling, reprinting, cancelling, repositioning pages of spooled jobs, assigning printing priorities etc.		
		Shall have facility to move spooled jobs to other printers.		
12	Other Software	Java development kit, C, C++ compiler and development package in 2 partitions in each site shall be provided.		
13	RAS Features	Each of the offered servers shall have an inbuilt service processor.		
		Processors shall be capable of dynamic CPU de-allocation.		
		Memory shall be protected through Advanced ECC / Chipkill, bit-steering & chip redundancy and error correction. Specify the technology used.		
		Pre failure Alert capabilities shall be available		
		All adapters shall be hot-swappable.		
		All the following components shall be hot swappable – Disks, Power Supplies, Fans, PCI etc.		

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		PCI buses shall have error handling capability.		
		Shall have indicators to identify failed components.		
		Shall have redundant Power Supplies and provision for input from at least two sources.		
		Shall have redundant cooling fans.		
		Shall have redundant system clocks.		
14	Scalability	The server scalability and upgradeability path in terms of CPU and RAM must be submitted.		
15	Others	System management shall be through dedicated ports and shall not use the adapters identified for partitions.		
		Rack to house the server shall be from the server OEMs as per the Rack specification.		
		All cables & accessories to implement connectivity between Server, SAN switches, LAN switches, Storage and Tape library shall be provided.		
		All power cables shall be supplied.		
		Specify power consumption on full load.		
		Specify heat dissipation on full load in BTU/hour		
16	Documentation	All the documents like data sheets, architecture, line diagrams, etc, shall be submitted.		
17	Reference	A list of reference sites with contact details must be submitted where same model of the server is being used in SAP landscape. At least two of these sites shall be from India. BHEL may contact/Visit the reference sites for verification.		

5.2 Specifications for Server Management System – 2 Nos.

Table - 4: Specifications for Server Management System:

S.No.	Item / Parameter	Specification	Compliance (Yes/No)	Bidder's Response
1	Hardware / Software	All Hardware and Software modules required to support the following activities shall be included in the scope of supply.		
		Server Management System at each site shall be single unified console for following activities		
		Console to create, remove and manage partitions.		
		Management and performance monitoring of all systems/sub-systems of servers/partitions such as CPU, Memory, Swap Files and File systems.		
		Log file monitoring including monitoring for specified error strings to provide realtime alerts.		
		Isolation of performance related issues.		
		MIS reporting of Historical utilization details for capacity planning		
		Customized Reports.		
		Capability to integrate with the Storage Management solution provided for the storage & backup solution.		

5.3 Specifications for NAS servers - 2 Nos.

The minimum common specification of NAS server is defined below and the server have to comply with the minimum requirements as defined in **Table-5**:

Basic Design Requirements for NAS server (Engineering)

NAS server and storage are required at primary and secondary site. NAS system shall be clustered and have synchronous replication to have zero data loss during failure of any one of the site. The NAS storage must be capable of doing replication synchronously and asynchronously so that in case of any business continuity policy change by BHEL, there shall not be a need to change the disk array hardware.

Table – 5: Specifications for NAS server

S.No.	Parameter / Feature	Detailed Specifications	Compliance (Yes/No)	Document Reference/ Remarks
1.	Rack mount	Should be rack mount		
2.	Processor	RISC/EPIC processor with minimum 2 cores		
3.	RAM	64 GB DDR SDRAM expandable to 128GB		
4.	Cache Memory	1MB level 2 cache per CPU		
5.	Hard Drives	Minimum 32 x 300GB 15K rpm hot pluggable FC/SAS HDDs. The NAS box should also support SATA drives for applications like snapshots.		
6.	HDD Bays (Internal & External)	At least 32 bays (OEM Make) to be provided from day 1		
7.	DVD Drive	8x24x DVD Writer or higher		
8.	Scalability	Minimum 15 TB with 300 GB HDD		
9.	Network Connectivity	Two 10/100/1000 auto sensing NICs		
10.	RAID Controller	2 Nos. of RAID Controllers supporting RAID 0, RAID 1 & RAID 5 each with 256MB battery backed cache		
11.	Network support	TCP/IP, FTP, CIFS, HTTP 1.1, NFS		
12.	Power Supply & Fans	Redundant & hot pluggable		
13.	Fault Recovery	Quick restore CD for disaster recovery		
14.	Network Client Types Support	Should support Windows XP and later versions, UNIX & Linux		
15.	NAS Features	It shall be possible to NFS mount the NAS file system on any LINUX/Unix server.		
16.	Manageability	Should come with management software to manage the storage allocation, etc.		
17.	Operating System	UNIX OS with NAS features shall be provided.		
18.	Other Software	Latest Version of XL C/C++ compatible with offered OS.		

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19.	Internal Disk	Server shall be booted from (internal disk each with 146GB, 15K RPM) minimum 2 x 146GB 15K RPM.		
		Internal Disks shall be mirrored.		
		Suitable disk management software including Volume Manager to dynamically manage the logical volumes to be supplied.		
20.	Replication	Storage must support bidirectional Data replication between Storage Systems at primary site and secondary without any server intervention.		
		The RPO maintained shall be near Zero.		
		NAS based bidirectional replication software with all available options including synchronous and asynchronous replication shall be provided.		
21.	Backup	The tape auto loader shall have 2 Fibre LTO Gen 5 drives.		
		Shall have minimum 48 cartridge slots.		
		Shall have internal bar code reader to label and identify the data tapes.		
		Rack mountable with necessary rack mounting kit and accessories.		
		Shall come with two nos. of FC ports & necessary FC cards & cables for connecting with NAS storage.		
		Shall come with web management software to monitor and manage the library remotely through a standard web browser		
		Backup software such as (Tivoli / Veritas / Legato / Data Protector) capable of taking back up of minimum 2 servers shall be provided. The backup software should be able to take LAN based backup of linux, unix and windows based servers.		
		Shall come with 50 numbers of data cartridges of highest capacity compatible with LTO Gen5 drives and 5 cleaning cartridges.		
22.	Cluster / High availability	All necessary software, hardware components for automatic high availability and seamless fail over and failback to be provided.		
		Redundant Heart beat paths shall be provided as per the diagram.		
		Shall be clustered using high availability clustering technology and there should not be any single point of failure in the offered solution. All necessary software agents must be provided for clustering. Support for the clustering software and all software agents must be provided. Shall have dedicated failover mechanism. The Clustering Solution shall be as per the diagram enclosed.		
		Cluster shall be configured in such a way that, in case of server/storage/site failure in one site service shall be provided from the other site automatically.		

5.4 Specification for SAN Storage: - 2 Nos

Table - 6: Storage sizing for each site

Disk Type	Minimum storage capacity requirement
Solid state Disk (SSD)	6TB of storage with atleast 1,50,000 IOPS
300 GB 15k rpm 8 Gbps FC or 300 GB 10/15k rpm 6 Gbps SAS II (2½" disk)	250 drives with atleast 35000 IOPs + Minimum of 10 hot spares

- Disks for operating system (required for SAN boot) of each partition shall be supplied in addition to the number of disk drives shown in the table above.
- Vendor has to demonstrate the IOPS performance using Intel IOMeter under the following parameters.
 - Read/Write 70%/30%
 - Block size 8 k
 - Random 100%
 - Cache hit 0%
 - File Size Total storage capacity
 - Raid level 5

Table – 7: Specification for SAN Storage

S.No.	Item / Parameter	Specification	Compliance (Yes/No)	Bidder's Response
1	Architecture	There shall be redundant controllers and no single point of failure.		
		The storages in both sites shall be of the same make and model.		
		The storage system must support connectivity to multiple host platforms simultaneously.		
		The Storage System shall support Intelligent hardware RAID controllers to implement hardware mirroring at storage controller level RAID levels 0, 1, 5 and 1+0		
		The storage system shall be supplied with 16 numbers of 8Gbps ports for connecting to SAN switch.		
2	Cache	Minimum 128GB of Global Cache is to be provided.		
		The data in cache shall not be lost in case of power failure. Specify the mechanism used. In case of battery backup, a minimum of 48 hours of backup shall be provided.		
3	Disks	Disks are to be provided as per Table- 6 for each site.		
		In case of hard disk failure, the system should be able to do dynamic reallocation of spare disk automatically without manual intervention.		
		All disks shall be 8 Gbps for FC or 6 Gbps for		

5.0 Technical Specification

		SAS.		
		All disks shall be hot swappable.		
4	Copy Services	Storage System shall support the creation of a physical point-in-time copy.		
		Storage System shall support Instant Split with read-write access of the primary / standard volume.		
		The Storage should support SAP Split Mirror backups integrated with the proposed backup software.		
5	Replication	Storages at each site shall support both synchronous and asynchronous replication.		
		Storage must support bidirectional Data replication between Storage Systems at primary site and secondary without any server intervention.		
6	Software	SAN software modules shall be GUI/Web based.		
		Point in time copy/Flash Copy and Volume Cloning with all available options including provision for taking full and incremental copy shall be provided. Specify the available option.		
		SAN based bidirectional replication software with all available options including synchronous and asynchronous replication shall be provided. Specify the available option.		
		The software shall support moving frequently accessed data from FC/SAS disk to SSD automatically for improved performance. Requisite license shall be provided for the entire storage capacity.		
7	I/O	Automatic rerouting of I/O traffic from the host in case of primary path failure.		
		The I/O interfaces from the servers shall be load balanced.		
		Load balancing software shall be provided for every SAN attached partition.		
		There shall be atleast 16 numbers of 8Gbps FC ports in each storage, for connecting to the SAN switches. The SAN storage will be connected to each of the SAN switches using eight FC ports.		
8	Volume / LUN Management	The Storage System shall be capable of: Creation of volumes that stripe across multiple backend disk ports for better load distribution and prevention of hot spots.		
		Allocating and revoking disk space.		
		LUN binding and masking license for at least 50 servers.		
		Dynamic Volume Expansion.		

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		Non-disruptive online microcode upgrades without impact on any application connected to storage system.		
9	Software Licenses	Licenses have to be provided for the storage capacity quoted at Primary and Secondary site as mentioned below: Point-In-Time Copy for entire storage capacity.		
		Synchronous & Asynchronous Replication for entire storage capacity.		
10	IOPS	IOPS rating of the components of storage offered shall be specified as follows <ul style="list-style-type: none"> ➤ SSD ➤ FC/SAS ➤ Entire SAN storage 		
11	RAS	Non-disruptive component replacement/upgrade of interfaces, disk controllers, disk drives, power supply & battery systems, cooling fans and microcode updates.		
		There shall be redundant power supplies with provision for connecting to power inputs from different sources.		
		Shall have redundant cooling fans.		
		Shall have redundant system clocks.		
		Pro-active maintenance, self monitoring, self diagnosing and wherever possible, self repairing features wherever possible.		
		Automatic isolation of failed components.		
		Recovery from unscheduled power failure/interruption without any data loss irrespective of the number or frequency of outages		
12	Others	The Storage System shall support multi-path automatic load balancing with no single point-of-failure between Servers, SAN switch and Storage System.		
		There shall not be any single point of failure in the entire SAN.		
		The storage system shall support the latest OS releases (supported by SAP) of the following mentioned Server/OS		
		RISC/EPIC servers running HP-UX		
		RISC servers running AIX 5.3 and above		
		RISC servers running Solaris		
		Intel based servers running Windows Enterprise 64 bit edition		
		Linux		
		The storage system shall be guaranteed to be fully compatible for Host Bus Adapters, Clustering Solution and OS offered with the Servers.		
		SAN storage that have reached end-of-life shall not be quoted		
13	Information	Make		
		Model		

5.0 Technical Specification

		Number of disk drives offered.		
		Maximum number of disk drives that can be installed in the offered storage.		
		Port Types.		
		Specify disk drives that are supported in the storage system.		
		The disk drives that have been proposed in the solution FC / SAS.		
		Power consumption of the storage in full load.		
		Heat Dissipation in BTU/Hour.		
14	Reference	A list of reference sites with contact details shall be submitted where same storage is being used in SAP landscape. Two of these reference sites shall be from India. BHEL may contact the reference sites directly for any feedback.		

5.5 Storage Management Software – 2 Copies

Table – 8: Specifications for Storage Management Software

S. No.	Item Name / Parameter / Specification	Compliance (Yes/No)	Bidder's Response
1	Single console management for allowing centralized control of physical storages arrays through dedicated server.		
2	Secure web based GUI software to monitor storage hardware performance, Status, configuration, Utilization and provide complete storage system .		
3	Define, configure, add, delete, expand, and reassign Logical Unit (LUNs) to specific paths non-disruptively and without having to reboot the system.		
4	The software must provide a graphical view of the complete SAN topology which should include information of LUN's, disks, storage arrays, SAN switches to hosts etc. in the same view.		
5	The Storage Management Software should have the ability to integrate with any industry popular EMS solution like HP-Openview, CA Unicenter , IBM Tivoli, etc.		
6	The Storage Management Software shall be GUI based and shall be able to discover and monitor storage systems. It shall provide pro-active intelligence by monitoring performance & host-wise capacity utilization.		
7	The bidder must submit a complete list of all disk system related software and their functionality. All software which are supplied (at no charges) also needs to be mentioned in the list.		

5.6 Common Specifications for SAN Switches: - 4 Nos.

Fiber channel switches of same configuration shall be provided and configured, two at each of the sites (Primary and Secondary sites) to connect all the servers, storage, tape library and other equipments. The required number of ports and additional 20% of spare ports shall be provided in each SAN switch. The switches shall be rack mountable. The offered SAN Switches shall be of **Brocade / Cisco / McData/IBM/HP** make only. All the switches shall be of same make and model.

Table - 9: Specifications for SAN Switches

S. No.	SAN Switch Specification	Compliance (Yes/No)	Bidder's Response
1.	Fiber channel ports shall be 1/2/4/8 auto sensing full duplex.		
2.	At least 16 Nos of the ports in each switch shall be Long Wave ports to support up to 5 KM direct storage circuit. Switch should support 8G/10G Fiber Channel ports.		
3.	All the ports should operate at min 8Gbps in a non-blocking backplane and auto-negotiate to 8Gb/4Gb / 2Gb FC speeds.		
4.	Setting of the port speed to 4Gbps or 8Gbps from the lower speed should not impact or disable the other ports in the same port blade or port group.		
5.	All the components should be hot swappable field replaceable allowing non-disruptive maintenance.		
6.	Should support non disruptive Microcode/ firmware Upgrades and hot code activation.		
7.	It should be possible to isolate the high bandwidth data flows traffic to specific ISLs/trunks by simply using Zoning.		
8.	Switch should provide advanced zoning capabilities and allow health and performance monitoring capabilities.		
9.	Should support web based management and also CLI (Command Level Interface) based management.		
10.	Should have proactive fault detection and alerting capability to avoid any hot-spots in the fabric.		
11.	The switch should be rack mountable.		
12.	It shall be possible to configure the switches with alerts based on threshold values for temperature, fan status, Power supply status, port status.		
13.	There should not be any single point of failure in the switches. The SAN switch should provide high availability features such as Dual-redundant control processors, WWN cards, redundant hot-swappable power and cooling subsystems. Power supply and fan assembly should have different FRU (Field Replaceable Units).		
14.	The SAN Switch should have Redundant Control Processor modules with no performance degradation in the event of one control processor failure.		
15.	The Switch should support Fiber Channel Ping and trace route.		
16.	The SAN Switch should support LUN Zoning, ACL based Port Security and Port Zoning.		
17.	The Switch shall be guaranteed to be fully compatible		

5.0 Technical Specification

	for HBAs, Clustering Solution and OS offered with the servers and the SAN storage.		
18.	All software, licenses required shall be supplied Specify the software.		
19.	Switch management software shall be provided for device management Specify the software.		
20.	While providing the technical response, the Bidder must clearly clarify the following points with proper explanation:		
	Make & Model No. of ports		

5.7 Common Specifications for LAN Switches: - 8 Nos (Number of ports shall be as given below)

LAN Switches of same configuration shall be provided and configured at each of the sites (Primary and Secondary sites) to connect all the servers. The offered LAN Switches shall be of **Brocade / Cisco** make only. All the switches shall be of same make and model.

5.7.1	48 ports of 10/100/1000 + 2 ports of 10G fibre port	- 4 Nos.
5.7.2	24 ports of 10/100/1000	- 4 Nos.
5.7.3	10G Xenpack (for Cisco 6509)	- 4 Nos.
5.7.4	10G module for Cisco 6509	- 1 No.
5.7.5	40m Fibre patch cords	- 8 Nos.

5.8 Common Specifications for Tape Library: - 2 Nos.

One tape Library shall be provided at each site. Both the tape libraries shall be identical.

Table - 10: Specifications for Tape Library

S. No.	Tape Library Specification	Compliance (Yes/No)	Bidder's Response
1	Primary and secondary site		
	Eight (8) native fibre LTO 5 drives to be offered. Shall have minimum 350 slots.		
2	Tape identification shall be using Bar code		
3	The tape library offered shall have robotic arm to identify media, load tape media into drives and put them back into corresponding shelves automatically. Loading and unloading of tapes from the library shall also be supported by the robotic arm.		
4	All the slots of the tape library shall be accessible by the robotic arm.		
5	Host Platform support: HP-UX, IBM AIX, Sun Solaris, Windows 2003/2008, Linux		
6	Shall supply 380 labeled, blank new LTO-5 tape media with each tape library; each with 1.5 TB uncompressed storage capacity.		
7	Shall supply 25 cleaning cartridges with each Tape Library.		
8	The tape library shall be configured with its management software to monitor the entire backup infrastructure – drives, library assets centrally from a single console.		
9	The Tape Library solution should have redundant hot swappable power supplies and cooling fans.		
10	Specify actual time taken for taking backup of 4TB data using a single drive with the offered solution.		

5.0 Technical Specification

11	All the cables -- fibre, Ethernet, SAS, etc required for connecting the backup servers with the SAN Storage and other servers shall be supplied by the bidder.		
12	There shall be end to end fibre connection between SAN and tape drive.		
13	5(five) numbers of special turtle case for transporting atleast 10(ten) LTO tape media to offsite shall be provided.		
14	A list of reference sites with contact details shall be submitted where same Tape Library is being used in SAP landscape. Minimum two of these reference sites must be from India. BHEL may contact these reference sites for any feedback.		

5.9 Backup Software: - 2 Copies

Backup Management Software must be provided as per the specifications listed below.

Table - 11: Common Minimum Specifications For the required backup software

S.No.	Backup Software	Compliance (Yes/No)	Bidder's Response
1	Backup software shall be a single solution for supporting multiple operating systems and application using a single product which would take care of data growth in future.		
2	The proposed Backup Software Solution shall be available on 64 bit UNIX OS platforms. The solution shall support backup / restore from various client platforms such as HPUX, IBM AIX, SUN Solaris, Linux, Windows 2003/2008, etc.		
3	Backup management software that helps monitoring of tape library shall be GUI/ web based.		
4	The offer shall cover licenses required for taking backup of the entire data residing in all the partitions and new partitions if created in future.		
5	Back-up software shall be a single solution for supporting multiple operating systems and applications using a single product		
	Back-up software shall support tape replication.		
	Back-up software shall support scheduled and policy based back-ups.		
	Back-up software shall support multiple simultaneous client sessions for back-up and restore.		
	The Backup software shall maintain catalog of all the backups for efficient management of data and for better performance.		
	The back-up software shall support features like Point-in-time back up/ restore and Archive /retrieve		
	The Back-up software shall support back-up over LAN, SAN and server free backup.		
	The back-up software shall provide integration with Enterprise Management software such as Tivoli, Unicenter TNG and HP-Open view.		
	Full and incremental split mirror backup.		
	Shall have provision for generating backup-sets from existing backup tapes, for moving to off-site location.		
6	Full backup of data base systems shall be possible to be taken without bringing the production system down, with full data base consistency and without affecting the performance to the users in any way.		
7	The backup software must be capable of running in a clustered environment. Cluster licenses of the backup software should be provided for both the Client and the Server components.		

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8	The backup software must use an RDBMS as the backup catalog for efficient management and scalability of the solution.		
9	The solution should be licensed for Server Free (Zero Downtime), SAN based and LAN based backups of the SAN attached servers.		
10	Backup client software shall be licensed to all the partitions at primary and secondary site and for the full capacity of the storage used.		
11	2 agents for Oracle & 5 agents for SAP to be provided at each site. Support for same shall be provided during the entire period of the contract.		
12	A copy of the backed up data at one site will be maintained on the Tape Library residing on the other site.		
13	It shall be possible to use all the eight drives simultaneously for taking site to site tape replication.		
14	The backup software shall be licensed to support disk staging. The disk staging units used for the Production and QA / Development systems will be different and thus any additional licenses, if required, shall be included in the scope of supply.		
15	The backup software should support (Role Based Access) different levels of User access, Administrator, User, Operator, so that only the authorized personnel can make changes or view the status based on the rights they have.		
16	Online backup agents for ERP and Database application shall be provided. The same shall support the versions of SAP R/3 4.7 and Oracle 10g and any upgrade required for supporting future version of SAP/Oracle shall also be provided till the expiry of the contract.		
17	The software must have the capability for monitoring and controlling the tape sent offsite.		
18	The Software must also provide for creating a Business Continuity Plan in case of the Backup server and all other servers in the backup network being destroyed in a possible disaster. This should be a scheduled and Automated activity on the backup server. The software shall also provide for restoring data at each site during complete non-availability of the other site due to disaster.		
19	Restore feature: System shall be configured for full restoration of the backed up data to the respective storage.		
20	Backup software shall support and shall be configured for scheduled automated restores to perform periodic restore drills.		
21	BHEL may increase/ decrease the number of CPU/RAM in backup server or any of the partitions at any point during the contract period. Additional licenses, if required shall be provided.		
22	Extensive reporting capabilities to monitor the health of Backups, support HTML, TEXT and CSV outputs, support for scheduled automated generation of reports.		

5.0 Technical Specification

23	Software shall support event notification to notify backup administrator about events like Job Failed or Job aborted, etc.		
24	Software shall support Scanning of Tape media to rebuild catalogs and indexes in case of disaster.		
25	Software shall offer centralized management console to remotely monitor backups.		
26	Software shall support Raw device backup of Windows / Linux / UNIX based system		
27	Software shall support online backup of oracle & shall support both Online and RMAN to perform online backup.		
28	Backup software shall be compatible to SAP BACKINIT. Details to be provided by the bidder.		
29	It shall be possible to take backup in both backup servers and tape libraries independently and simultaneously (Active-active mode) from both sites.		
30	In case of backup server/tape library failure at one site the other server/tape library shall be used to take backup.		
31	Automatic media management shall be taken care by the backup software.		

5.10 Racks

Table – 12: Specifications For the required racks:

S. No.	Item / Parameter	Specifications	Compliance (Yes/No)	Bidder's Response
1	Rack	Heavy Duty Racks (not exceeding 42U) for installation of all the hardware shall be supplied, with metered power distribution unit, cable manager, cooling fans, front & rear doors.		

5.11 Bio-metric Access control system – 2 Nos.

The Access Control System shall be used to serve the objective of allowing entry and exit to and from the premises / restricted areas within the facility to authorized personnel only. The system shall be designed and implemented to provide following functionality:

1. Controlled Entries to defined access points
2. Controlled exits from defined access points
3. Controlled entries and exits for visitors
4. Configurable system for user defined access policy for each access point
5. Record, report and archive each and every activity (permission granted and / or rejected) for each access point.
6. User defined reporting and log formats
7. Fail safe operation in case of no-power condition and abnormal condition such as fire, theft, intrusion, loss of access control, etc.
8. Day, Date, Time and duration based access rights shall be user configurable for each access point and for each user.
9. One user can have different policy / access rights for different access points.
10. It should be possible to use the access devices like biometrics, proximity card readers, push buttons, manual switches, etc. in user defined combination for any and all of the access points on a single platform using a single software for interface.
11. Access control system shall be designed and integrated with the access levels as desired by the user.
12. Manual mechanical override wherever required shall be provided for access controlled gates / doors.
13. The access control system should support the user defined access logic such as four eye concept, access timeout, anti- pass back ,etc.
14. It should be possible to configure the access rights for user defined shift hours of the day, configurable holidays, etc. It should be possible to configure the yearly schedule of access for each user and each access point in advance.

The system employed shall be based on combination of Biometric and Proximity card Readers (with PIN and without PIN) for the critical areas, and Proximity Reader for less critical areas. System offered shall have minimum false denial of access. It shall not grant the access to the unauthorized entity under any circumstances.

System offered shall use the reliable devices to provide trouble free operation.

System shall be compatible to the Proximity cards to be provided by the Bidder. System should have anti-pass back feature with time scheduling and zonal access defined.

5.11.1 Application Software:

The application software shall mean the access & time management software and database that shall be supplied together with the system in order to provide a Graphical User Interface (GUI) for human – machine interface.

The Application software must be :-

- Able to Remotely Open Doors when Desired
- Must Provide Patrol Management Interface
- Must Provide at least 65 Control Zones
- Must be the Same for both Biometric and Proximity
- Open Platform for future integration must be provided in the form of a SDK Kit.
- The software shall be capable of providing the required functionality as mentioned above as a minimum.

5.11.2 Door Controller:

The Door Controller system must be intelligent and capable of controlling 2 Doors having IN and OUT Interface.

The Door controller system shall have separate readers for Entry with biometric and Exit without biometric.

The door controller system shall store in its memory all the system parameters & card databases and shall be virtually independent of the network server for its regular operations. It shall also update the network server of the card entry / exit transaction data with time & date stamp when the network is online. If the network is off line, the door controller system shall store such data in its internal memory & transfer the same to the server as and when it comes back on line. The Database must have a minimum transaction record of 10,000. The user capacity must be not less than 50. The Controller shall provide Alarm Inputs for CCTV and Fire Alarm System Integration. The Controller shall have a Onscreen LCD Display to display online activities. The Controller shall be independent of the network allowing Users to Add / Delete / Modify Card Databases directly from the Controller.

5.11.3 Proximity Card Reader :

The unit shall be capable of reading the card without physical contact. The card reader shall only read the card data & pass it on to the door controller system for validation. The card reader, on its own may not take any decisions for granting / denying the access. The Card Reader shall have a RED/GREEN Led Indication to highlight the User Access. The card Reader must be slim and capable of directly mounting on the provided surface.

The card reader must be able to communicate with the controller employing a RS232 Format.

5.11.4 Biometric Controller and Reader (Finger Print Reader – FPR)

The Fingerprint Reader should be networkable,. The PC will be used for accessing the stored data of the software.

The Finger Print Reader (FPR) shall be a device, which is capable of reading a fingerprint & comparing the same with a stored template, based on optic sensors.

The FPR shall store the fingerprint templates of each cardholder indexed against the card number issued to the person.

The FPR shall provide a interface of Proximity + Biometrics, Biometrics + Pincodes + Proximity, Biometrics + Pincodes or Only Biometric.

When a card is presented at the proximity card reader, the card number shall be passed on to the FPR, which would then read the finger print, compare it against the templates stored against the same card number. If the fingerprint is matched, FPR shall give signal to the door controller system. In case the fingerprint is not matched, access is denied.

It should be possible to configure the reader to store template of multiple fingers per person. It should be possible to configure access logic to accept alternate template for granting the access.

Biometric reader is for the entry to the server room

5.11.5 Proximity Card :

The proximity card shall mean the access card that is capable of being read without a direct contact by the proximity card reader.

The Proximity Card should be of ISO Thickness and employ 125 Khz for Transmission

The proximity card profile shall be designed and agreed with the Bidder during the engineering stage.

All the cards issued for the various facilities shall have a common facility code to allow inter operability of the cards from one access point to another.

The card numbers shall be unique to each card & the systems at each facility shall permit access only to select card numbers, based on the programming.

Minimum of 50 cards to be made available

5.11.6 Electro Magnetic Locks:

The Electro Magnetic Lock (EML) shall mean a locking mechanism that works on the principle of electromagnetic attraction. The EML shall be installed on single swing flush doors. The door controller system shall control the EML. The Lock holding capacity must be atleast 650 Lbs. The type and specification of the locks shall be in accordance with the door design and specification and also door controller system. The locks should be of sufficient strength to withstand forced attack to open the door.

5.11.7 Other devices such as Manual Switches, Push Buttons, Mechanical over-ride etc.:

As required and compatible with the overall system offered by the bidder.

5.11.8 Cables :

As required and in accordance with the general specifications guidelines provided in 'Electrical Distribution System' section and Product Parameters defined hereunder.

Panic latch bar has to be provided for the emergency door of the server room

The design of access control should be based on the various zones of the DC from least secure to high secure zones. A matrix depicting the entry and exit for each of the doors to be submitted along with the technical bid.

5.12 Precision Air-conditioning - 4 Nos.

BHEL will provide a Computer room having 100 Sq. metre area for the deployment of the Computer Systems at each site. The computer room will have false flooring and false ceiling. The Bidder shall offer 2 precision Air-conditioner units per site.

Each of the Precision Air-conditioners shall be sized to support 150% of the heat load in each site.

Temperature of 21 Deg. C +/- 1 and relative humidity of 50% +/- 5 shall be maintained in each site. The computer system will be operated round the clock shift on all 365 days.

All the Precision Air-conditioners shall be bottom discharge with high CFM units.

The thermal insulation below the false floor, AC ducts, diffuser and floor grills are in the scope of the bidder.

The unit supplied shall have redundancy. A sequential timer facility should be available for the alternate use of the units.

The minimum requirements for the AC are mentioned below. Bidder has to comply to these specifications.

Table – 13: Specifications For Precision Air-conditioners:

Sl. No.	Technical Requirements Vendor compliance	Compliance (Yes/No)	Bidder's Response
1	Precision air conditioners complete with all controls, indoor and outside units, monitoring units and complete installation and commissioning for server room.		
2	The vendor is expected to include all auxiliary works like ducting, inlet and drain piping, piping between indoor and outdoor, cabling, acoustic and thermal insulation (Duct and floor for server room), volume control dampers, supply and returns air grills, stands for indoor and outdoor units with related civil works etc. as per the site requirements.		
3	Automatic monitoring and control of cooling, heating, humidification, dehumidification, air-filtration, etc. should be installed		
4	These equipment should be compliant to the following :		
5	Cabinet conforming to Class 1 BS 476 Part 6&7 standards		
6	Air filtration conforming to EU3 standards		
7	Electric Re-heater should be operating at black heat temperature		
8	Humidifier should have an adjustable capacity control ranging from 40%-100%		
9	Visual and audible alarm indication		
10	Graphical display of temperature and humidity curves over the last 24-hour		
	Humidity , Ventilation, Air Conditioning (HVAC)		
11	Air conditioning for direct expansion air conditioning is used then condensers should be located outside the building.		
12	Optimal temperature of 21 deg C + or - 1 shall be maintained.		
13	45 - 50% Relative Humidity shall be maintained.		
14	Relative humidity variation shall not exceed +/- 3%.		

5.0 Technical Specification

15	Microprocessor controller Panel		
	The display panel should be located on the front of the unit with LCD display for monitoring and alarm indication. The panel should be used for :		
16	Status detection (whether on or off)		
	Temperature controller		
	Humidity controller		
17	The panel should make an audio visual alarm in case of:		
	Power failure		
	Fan overload		
	Humidifier power fault		
	Humidifier control fault		
	Heater fault		
	Airflow failure		
	Change filter		
	Control circuit trip		
	Return air temperature / RH out of range		
	Supply air temperature out of range		
	Return air humidity sensor alarm		
	Return air temp. Sensor alarm		
	Data Error		
	Service alarm		
	Electric heater alarm		
	Microprocessor fault		
	Humidifier flood		
	Water leakage alarm		
	Smoke alarm		
18	Other functions of the control panel		
	Graphical display of temperature and humidity curves over the last 24-hour.		
	Self-diagnostic functionality		
	Supply air fan surge to let fan continue on operation for a period of 180 second before total shutdown.		
	An automatic changeover for duty / standby unit based on time interval setting and any failure of duty unit.		
	An automatic restart function with sequence start program to prevent power surge during start-up on multi-system installation.		
	A graphic display to review the return air temperature and humidity condition.		
	Comprehensive event storage system by date and time of occurrence.		
	Simply user-friendly operating guidance.		
	Web enabled Remote monitoring of the Precision AC unit using desktop PC.		

5.13 Laying of Fibre cable between primary and secondary site

Supply and laying of the optic fibre cables between the Primary and secondary site, which are ~1500 metres apart, is also part of the contract. The cable will be used for interconnecting the SAN, dedicated LAN and heartbeat communication across the two sites. There will be two routes between the primary and secondary sites along which the fibre cables shall be laid. One route is approximately 1000 metres and the other is approximately 1500 metres. Two numbers of 12 core single mode fibre cable each shall be laid along the two routes between the primary and secondary sites.

The following procedure has to be followed for laying the fibre cable.

The cable shall be laid underground in HDPE pipe, by excavating the earth to a depth of 1 metre. The pipe shall be covered with half round concrete trough of 4" dia. Cable route markers shall be installed at intervals of 50 meters and at turning points. Warning tape shall be laid at a depth of 25 cms above the trough. The excavated portion shall be refilled with the excavated earth.

In case of road crossing the cable shall be laid at a depth of 0.5 metre in GI pipe of suitable diameter. The excavated portion shall be refilled fully with the excavated earth, shall be compacted and shall be finished by cementing.

In some places the fibre cable shall be laid along pre-formed trenches. This involves removal of cement slabs at few locations, laying of HDPE pipe, laying of fibre cable inside HDPE pipe and replacing of cement slabs.

Wherever the cable is required to be laid on wall, the cable shall be laid in GI pipe of suitable diameter and the pipe shall be securely fixed to the wall.

All the fibre cores shall be spliced with pigtailed and shall be neatly dressed inside the fibre patch panel using couplers.

The bidder shall test Fiber optic cable cores spliced by them using OTDR and submit a test report.

5.13.1 General conditions

Supply of the fibre cable and its accessories like LIU, pigtail and coupler are in bidder's scope. Supply of materials required for laying, like HDPE pipe, trough, GI pipe, route marker and warning tape are also in suppliers scope.

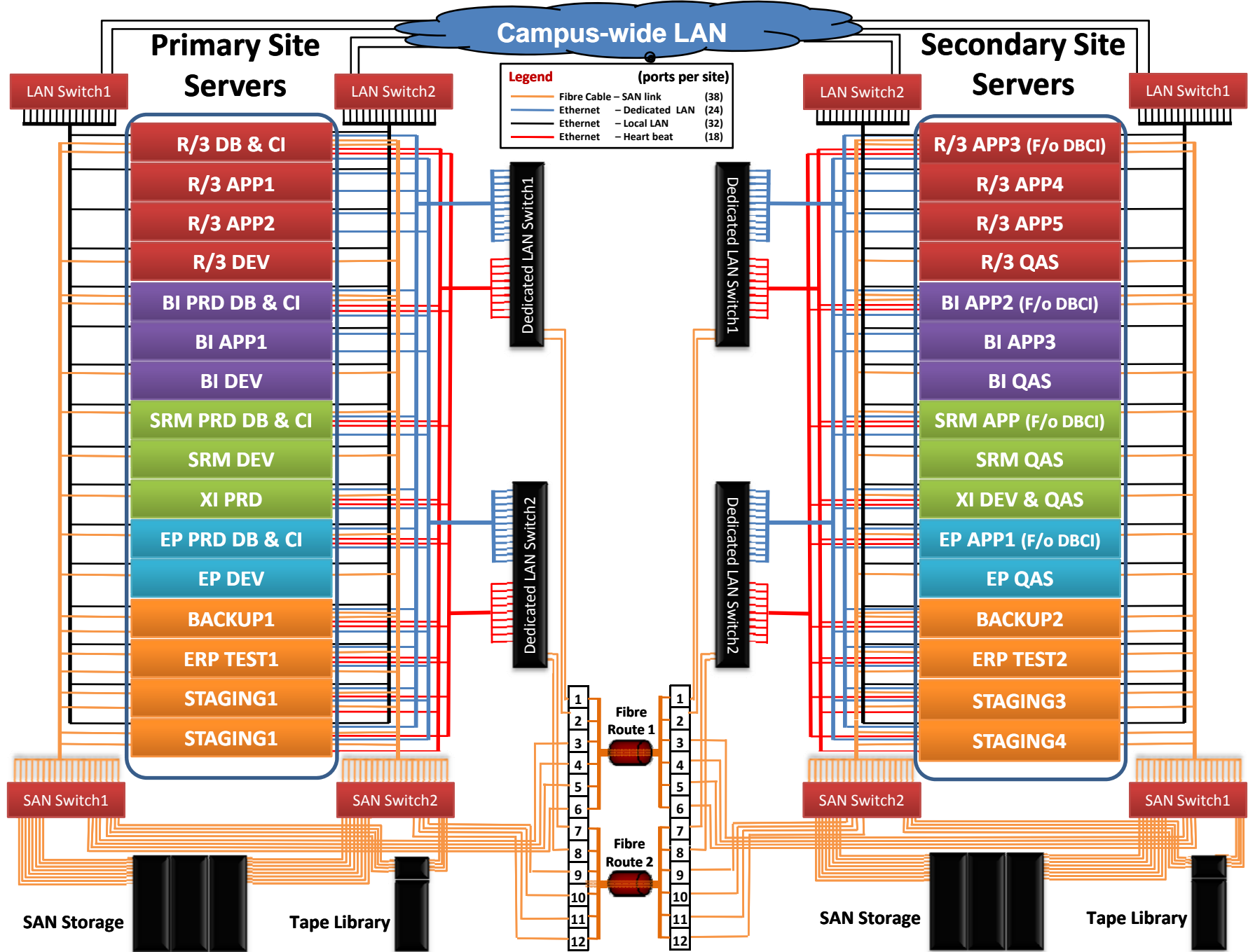
Vendor shall indicate make and type of the Fibre cable.

The Vendor shall fulfill the welfare requirements of their workman.(ie ESI, PF etc.) as per BHEL policy.

It is the responsibility of the Vendor to move the materials from Informatics Centre to the respective work places.

If the vendor wants to visit BHEL,Tiruchy to see the route of cabling before submitting the bid, BHEL will make necessary arrangement.

Hardware required By BHEL, Tiruchirappalli for running ERP Package (SAP ECC 6.0)



No Deviation Certificate

(To be given in bidders letter head)

Ref: BHEL's Enquiry No. _____ Dated _____

It is Certified that the offered solution vide Enquiry No. _____ dated _____ in response to BHEL's enquiry mentioned under reference has no Technical deviation with the requirement of BHEL, Trichy given vide the Technical Specification (Requirement).

Date:

Vendors Signature with seal

**Format for Submitting the Price details of Supply of Computer Systems on finance lease
for a period of 5 years for replacement of existing hardware running ERP Applications
BHEL, Tiruchy-14**

Item No	Item Description (For supply & commissioning at Tiruchy)	Item Qty	5 Year Finance Lease Option (Quarterly Rental)							Energy consumption for total unit per quarter * G=(Unit x rate per unit)	Total quarterly cost for L1 evaluation (quarterly rental+quarterly energy cost) H=(F+G)
			Principle A	Interest B	Maintenance Charges C	Lease / Service tax (%) D	Lease / Service tax (Value) E	Total Quarterly Rental including Tax F=(A+B+C+E)			
5.1	Unix Servers (including racks)	2									
5.2	Server Management System	2									
5.3	NAS Servers (including racks)	2									
5.4	SAN Storage (including racks)	2									
5.5	Storage Management Software	2									
5.6	SAN Switches	4									
5.7	LAN switches	8									
5.8	Tape Library (Back-up Device)	2									
5.9	Backup Management Software	2									
5.11	Biometric Access Control Systems	2									
5.12	Precision Air Conditioners	4									
5.13	Fibre Optic cable laying between sites in two routes	1									
	Total									T=	
Total Rental charge for 5 years =Tx5x4											
	Quarterly Maintenance Charges for 6th year										
	Quarterly Maintenance Charges for 7th year										
*Energy cost will be calculated based on current tariff of Rs 6.00/Unit											

08 B- Price Format

**Format for Submitting the Price details of Supply of Computer Systems on finance lease
for a period of 5 years for replacement of existing hardware running ERP Applications
BHEL, Tiruchy-14**

Item No	Item Description (For supply & commissioning at Tiruchy)	Item Qty	Outright Purchase (including AMC upto 5 th year)						
			Price without any Warranty & Excluding Taxes A	Std.Warranty Period in no of years B	Price with standard Warranty excluding Taxes C	Specify % of Tax & Duties D	Tax Value E=(CxD)	Balance AMC value after Warranty Period upto end of fifth year including tax F	Total Price including Taxes, Duties and AMC G=(C+E+F)
5.1	Unix Servers (including racks)	2							
5.2	Server Management System	2							
5.3	NAS Servers (including racks)	2							
5.4	SAN Storage (including racks)	2							
5.5	Storage Management Software	2							
5.6	SAN Switches	4							
5.7	LAN switches	8							
5.8	Tape Library (Back-up Device)	2							
5.9	Backup Management Software	2							
5.11	Biometric Access Control Systems	2							
5.12	Precision Air Conditioners	4							
5.13	Fibre Optic cable laying between sites in two routes	1							
	Total								

Date:

Vendors Signature & Seal

**Format for Submitting the Price details of Supply of Computer Systems on finance lease
for a period of 5 years for replacement of existing hardware running ERP Applications
BHEL, Tiruchy-14**

Optional items for which Price shall be quoted (This will not be included for Price comparison)									
Item No	Item Description	Item Qty	Price without any Warranty & excluding Taxes A	Std.Warranty Period in no of years B	Price with standard Warranty excluding Taxes C	Specify % of Tax & Duties D	Tax Value E=(CxD)	Balance AMC value after Warranty Period upto end of fifth year including tax F	Total Price including Taxes, Duties and AMC G=(C+E+F)
10	Price per processing power of 5000 SAPS	1							
20	Price per 16 GB of RAM	8							
30	Price per 8 Gbps Fibre Channel card	2							
40	Price per Gigabit Ethernet Card	2							
50	Price for additional 16 disks of 300 GB 10K/15K rpm spindles for the SAN (approximately 4 TB of raw capacity) with multipathing, remote copy and local copy	2							
60	Price per SSD disk								

 BHEL - TRICHY	THIRD PARTY NON-DISCLOSURE AGREEMENT		Doc.No. : ISMS-04/TP/011
			Ver. No: 2.0
	Date : 01 - 10 - 09		

THIRD PARTY NON-DISCLOSURE AGREEMENT

I, _____, on behalf of the _____ (Name of Company), acknowledge that the information received or generated, directly or indirectly, while working with BHEL, Trichy on contract is confidential and that the nature of the business of the BHEL, Trichy is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL, Trichy Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, drawings, processes, formulae, compositions, systems, techniques, inventions, computer programs/data/configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data,

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL, Trichy all documents and property of BHEL, Trichy, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL, Trichy 's business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, Trichy and are reasonable given the nature of the business carried on by the BHEL, Trichy I agree that this agreement shall be governed by and construed in accordance with the laws of country.

I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at _____, this ____ day of _____, 20__.

Name

Company

Signature

Bharat Heavy Electricals Limited, Trichirapalli – 620 014

MM : CAPITAL PURCHASE

(To be filled and submitted along with offer)

BHEL Commercial Terms and Conditions for Indigenous Supplies		Vendor's Confirmation / Comments
EMD for Rs 2,00,000/- shall be payable as per the instructions furnished in the annexure. Otherwise the offer will not be considered. Pay order / DD No / Cash receipt no & date may be furnished		
Technical confirmation to BHEL's Specification as called for in BHEL Format shall be furnished. If needed additional sheets shall be used.		
Prices shall be quoted item wise only as per the model format enclosed. An unpriced copy shall be submitted along with technical bid (Part-II) where in the applicable Taxes and Duties Shall be clearly specified		
Prices shall be quoted on "FIRM PRICE" basis only. The prices should be only on F.O.R / Despatching station basis inclusive of Packing & Forwarding charges if any. Applicable % of ED & Sales Tax , Freight & Insurance, Installation & Commissioning Charges should be clearly indicated.		
Validity of offer shall be for a minimum period of 120 days from the date of Tender opening		
Delivery period (for supply portion) from the date of Letter of Intent / Purchase order shall be clearly mentioned in the offer.		
Period for completion of the Installation & Commissioning work at BHEL shall be clearly specified in the offer		
Liquidated damages @ ½% per week subject to a maximum of 15% of the order value shall be applicable for delay in deliveries.		
Liquidated damages @ ½% per week subject to a maximum of 15% of the Erection Charges shall be applicable for delay in the period of completion of the Installation & Commissioning		
Following Risk Purchase clause shall be applicable: The purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated or if the same were not available, the best and the nearest available substitute therefore. The supplier shall be liable for any loss which the Purchaser may sustain by reason of such risk purchases.		
Payment terms for supply portion: The quarterly rental charges will be payable at the end of each quarter		
All Equipments / Services including concern Personal for carrying out the erection and commissioning of the Equipment shall be arranged by the vendor. If any Services is availed from BHEL, it is only on chargeable basis unless otherwise specified.		
Any warranty replacement during warranty period shall be supplied free of charge on FOR BHEL, Trichy basis.		
Offers should be submitted only in sealed cover super-scribing clearly the Enquiry reference and due date.		
As per Clause 4.2) acceptance for participation in Reverse auction (RA). Yes/No to be indicated		
Company Full address		
Name of the person for participating reverse auction.		
Land Line Number		
Fax Number		
Mobile Number		
E-mail ID		
Pan No	TIN No	CST No
Ser.Tax No.		

NOTE:-

- Your specific acceptance to our Payment terms, LD, Risk Purchase Clause & Submission of EMD amount are essential for consideration of your offer. Other wise your offer is liable for rejection.
- No row shall be left blank. Please indicate NA, in case the item is "not applicable"NOTE:-

INTEGRITY

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at “BHEL House”, Siri Fort, New Delhi – 110049 (India) hereinafter referred to as “The Principal”, which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

And

_____ (description of the party along with address), hereinafter referred to as “The Bidder/ Contractor” which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the

OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for _____

_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidders(s)/ Contractor(s) from the tender process or take action as per the separate “Guidelines on Banning of Business dealings with Suppliers/ Contractors” framed by the Principal.

Section 4 – Compensation for Damages

4.1 If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.

4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors

6.1 The Bidder(s)/ Contractor(s) undertake(s) to obtain from all sub-contractors a commitment consistent with this Integrity Pact and report Compliance to the Principal. This commitment shall be taken only from those sub-contractors whose contract value is more than 20% of Bidder"s/ Contractor"s contract value with the Principal. The Bidder(s)/

Contractor(s) shall continue to remain responsible for any default by his Sub-contractor(s).

6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.

6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors /Sub- contractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 –Independent External Monitor(s)

8.1 The Principal appoints competent and credible Independent External Monitor for this Pact.

The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.

8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.10 The word „Monitor“ would include both singular and plural.

Section 9 – Pact Duration

9.1 This Pact begins and shall be binding on and from the submission of bid(s) by bidder(s). It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On behalf of the Principal
(Office Seal)

For & On behalf of the Bidder/ Contractor
(Office Seal)

Place-----

Date-----

Witness: _____

(Name & Address) _____

Witness: _____

(Name & Address) _____
