Bharat Heavy Electricals Limited

(A Govt. of India undertaking)

Boiler Auxiliaries Plant, Ranipet – 632406, Tamilnadu.

Purchase Department

BAP:IC:10GNETWORK:Amend-2 **Dt:26.08.2011**

Subject	**Tender Change Notice (TCN) - 02**
Job	**Design, Supply, Installation, Commissioning and Maintenance of Network Actives and Passives and Data Centre equipment for Campus Wide 10 Gigabit Network at BHEL, Ranipet on 5 Years Lease Rental Basis**
Ref:	**1. Tender Notice : BAP:IC:10GNETWORK dt. 13.07.2011** **2. BHEL's NIT_10206 dt. 13.07.2011**

With reference to above, following points, relevant to tender, may please be noted and complied with while submitting the offer.

S.No	Tender Reference	Earlier Tender description	Revised description
1	Annexure-III- Page No.4	10 G Network Locations Layout Diagram	10 G Network Locations Layout Diagram revised.
2a	Annexure-III – Page No.87	Supply UPS (N+N) and integrate the same	Size the UPS for PDC1 and PDC2 and Supply UPS (N+N) and integrate the same. UPS capacity should be arrived by the bidder deign calculation but minimum 2X 80 KVA should be considered
2b	Annexure-III – Page No.87	Supply Generator Set and integrate the same	Size Genset for Data Center (PDC1 & PDC2) and size Genset for DR and Supply Generator Set and integrate the same. Gen set capacity

			should be arrived by the bidder deign calculation but minimum 250 KVA for PDC1 & PDC2 and 100 KVA for DR should be considered.
2c	Annexure-III – Page No.87	Size the Precision cooling requirement of the server farm area with redundancy (N+1), supply and integrate the equipment	Size the Precision cooling requirement of the server farm area (PDC2) with redundancy (N+1), supply and integrate the equipment. PAC capacity should be arrived by the bidder deign calculation but minimum 2X 10TR should be considered.
2d	Annexure-III – Page No.87	Design and implement intelligent fire detection system and complement the same by a high sensitivity smoke detection system	Design and implement intelligent fire detection system for PDC1, PDC2 and DR and complement the same by a high sensitivity smoke detection system
2e	Annexure-III – Page No.87	Rodent repellent system for the server farm area.	Rodent repellent system for PDC1, PDC2 and DR.
3	Annexure-III – Page No.101	Design Lifetime: ≥ 5 years	Removed the clause, " Design Lifetime: ≥ 5 years." and added "Batteries to be changed with new batteries after 2.5 years and also as and when they fail. All the batteries shall be replaced with new batteries in the last quarter of the lease contract."
4a	Annexure-III – Page No.118	DCO has to Commission a DG sets comprising of 1No. 300 KVA, for the SDC as per following requirements &	Bidder has to Commission two DG sets, one for PDC1 and PDC2 and another one for DR site as per following requirements &

		specifications as per the detailed Technical Specifications & drawings as given in the tender	specifications as per the detailed Technical Specifications & drawings as given in the tender.
4b	Annexure-III – Page No.118	One DG Sets of 300KVA prime output capacity is required for this project. The set shall automatically start one after the other upon mains power failure	Two DG sets are required for this project. The set shall automatically start upon mains power failure
4c	Annexure-III – Page No.118	One No. 300KVA Output, 415 Volts, 3 Phase, 50 Hz Generator with Class F Insulation	415 Volts, 3 Phase, 50 Hz Generator with Class F Insulation
5	Annexure-III – Page No.119	Please refer the BOQ for the specifications of Auto Synchronous Panel	Removed this statement.
6a	Annexure-III – Page No.121	Diesel Engine, water cooled, Naturally Aspirated, developing 1 x 300 KVA @1500 RPM	Diesel Engine, water cooled, Naturally Aspirated, developing required rated KVA@1500 RPM but with minimum capacity specified elsewhere
6b	Annexure-III – Page No.121	The Alternator generally conforms to BS: 5000/IS: 4722 and suitable to deliver output of the engine capacity having 300 KVA.	The Alternator generally conforms to BS:5000/IS: 4722 and suitable to deliver output of the engine capacity having required rated KVA.
7a	Annexure-IV Form A Page No.8	Letter of Authority	Letter of Authority cum Undertaking

7b	Annexure-IV Form A Page No.8	In case of any default alternative arrangement would be done by us on the same terms and conditions as negotiated and finalized in this tender enquiry	We also undertake that we will not change the authorized agency during the tenure of the contract equipment supply period. This undertaking shall stand valid irrespective of any changed relationship between us and the authorized agency during this tender. In case of any default, we will identify another authorized partner with similar certifications/capabilities and extend support to the new partner on the same terms and conditions as negotiated and finalized in this tender enquiry.
8a	Annexure-IV Form B Page No.9	Letter of Authority	Letter of Authority cum Undertaking
8b	Annexure-IV Form B Page No.9	In case of any default alternative arrangement would be done by us on the same terms and conditions as negotiated and finalized in this tender enquiry	We also undertake that we will not change the authorized agency during the tenure of the contract equipment supply period. This undertaking shall stand valid irrespective of any changed relationship between us and the authorized agency during this tender. In case of any default, we will identify another authorized partner with similar certifications/capabilities and extend support to the new partner on the same terms and conditions as negotiated and finalized in this

			tender enquiry.
9	Annexure-IV Clause 1.1 Page No.1	Much before the tender due date	One week before the date and any queries will not be entertained after this.
10		Tender submission date 29-08-2011	Tender submission date 14-09-2011

The revised pages (Annexure–III Page No 4, 87, 101, 118, 119, 121) are attached here.

The revised pages (Annexure–IV Page No 1, 8, 9) are attached here.

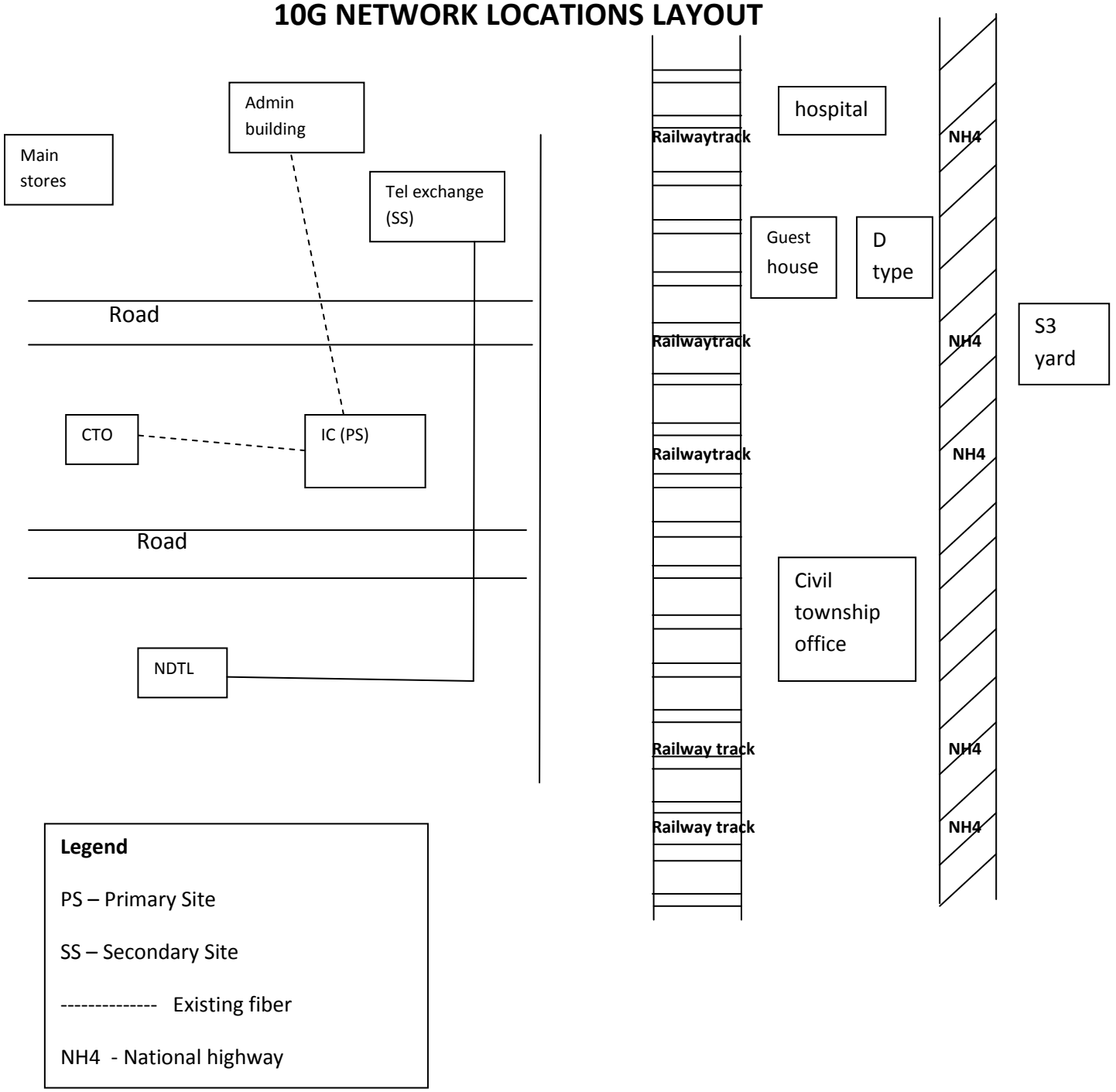
All other terms and conditions of the tender shall remain unchanged.

Tenderer shall sign and stamp this page and submit it along with the Technical offer as a token of acceptance of the above clause.

For clarifications, if any, contact

Deputy General Manager / Purchase - Utility
Phone: + 91 - 4172 – 284338
Phone: + 91 - 4172 – 241055
E-mail: nt@bhelrpt.co.in or
rraja@bhelrpt.co.in

10G NETWORK LOCATIONS LAYOUT



Name: Company Seal

Signature: with Date:

- Design should consider five server racks and two network racks at PDC2 and scalable to address 25 KVA additional loads in PDC2 for next five years. Provision to add UPS and PAC in future to meet the additional load to be made in the design. Primary site Genset to be designed to cater the PDC1 and PDC2 current and future loads. Secondary site Genset to be designed to cater the DR current and future load.
- Undertake Civil works for the DC, erect partitions, do the false flooring, false ceiling etc.
- Demolition of the existing partitions/structure in the identified DC premises, if any
- Carry out electrical power distribution works inside the Data center
- **Size the UPS for PDC1 and PDC2 and Supply UPS (N+N) and integrate the same. UPS capacity should be arrived by the bidder deign calculation but minimum 2X 80 KVA should be considered**
- **Size Genset for Data Center (PDC1 & PDC2) and size Genset for DR and Supply Generator Set and integrate the same. Gen set capacity should be arrived by the bidder deign calculation but minimum 250 KVA for PDC1 & PDC2 and 100 KVA for DR should be considered.**
- **Size the Precision cooling requirement of the server farm area (PDC2) with redundancy (N+1), supply and integrate the equipment. PAC capacity should be arrived by the bidder deign calculation but minimum 2X 10TR should be considered.**
- Size the comfort air conditioning unit with redundancy (N+1) for the UPS room.
- **Design and implement intelligent fire detection system for PDC1, PDC2 and DR and complement the same by a high sensitivity smoke detection system**
- **Rodent repellent system for PDC1, PDC2 and DR**
- Implement the data center in the scheduled timeframe and project manage the same

Infrastructure availability

Multiple layers of Power supply as follows:

- Feeder from the State electricity Board which will be provided by BHEL.
- Generator back up for the primary power one with Auto Switch

Minimum requirements

HVAC system

- Air supply typically should be through false flooring and there should be redundancy to ensure Air conditioning is available for the server farm.
- The Temperature inside the server farm is to be precisely controlled to maintain the temperature at 21 degrees centigrade (+/- 1 degree) with precision Air conditioning
- Comfort cooling for the UPS room to be provided by bidder cooling at around 22 to 23 degrees centigrade. The unit to have redundancy to take care of 24 x 7 operations.

Smoke detection & Fire Detection Systems with alarm.

- DC should have high sensitive Smoke Fire detection systems
- Environmental conditions to be taken into account while designing the DC. Rodent menace to be monitored and controlled in the server farm area.

The UPS shall provide state of the art power conditioning. The output waveform shall be pure sine wave with distortion level of less than 2% on 100% linear load and less than 5% on non-linear load. It should support loads with crest factor of 3:1 or higher. The dynamic regulation shall be superior and the UPS should have capability to clear branch circuit fuses (HRC type) – with minimum of 20% rating. The control shall be fully digital employing dual microprocessor or superior technology. The inverter has to be capable of supplying overload current of min. 150% of the system rating for 30 seconds.

BATTERY

The batteries shall be sealed maintenance free lead acid type, the batteries shall be housed in a powder coated open rack complete with battery, inter cell connectors etc. The cabinet shall be cubicle type, floor mounted and powder coated. All sides of the cabinet shall be open and with louvers for ventilation. The battery cabinet shall be designed to allow for ease of maintenance easy access.

Battery type: Sealed valve-regulated, flooded, battery cells designed for high rate of discharge.

- DC ripple: Max. 2%

Batteries to be changed with new batteries after 2.5 years and also as and when they fail. All the batteries shall be replaced with new batteries in the last quarter of the lease contract.

Low battery voltage protection: To prevent total discharge or damage to the battery, the UPS must transfer to standby operation when the battery voltage reaches a set minimum voltage level (programmable). If the AC input source has not returned within 10 minutes after "low battery" shutdown, the UPS shall automatically disconnect DC power from the battery to avoid deep discharge.

A battery-monitoring unit must be part of the system and it shall be capable of monitoring and defining battery capacity. It must be possible to program the unit to perform an automatic battery test every 90 days to test the condition of the battery.

Battery manufacturing controls: Each battery cell must be clearly identified as to cell type, voltage, and capacity. All cells in the battery have to be tested to verify 100% system capacity. The equipment must be designed and manufactured under a quality assurance program that is controlled and documented by written policies, procedures, or instruction.

Battery load test: Battery load test to be carried out during commissioning at BHEL.

UPS DISPLAY AND CONTROLS

Display unit

9) Mounting : Wall/ table mounting

3.20.9 DIESEL GENERATOR SET

DESCRIPTION OF WORK & SPECIFICATIONS

A.1. **Commissioning of Diesel Generator (Detailed Technical Compliance is provided in the Technical Bid**

Make: Cummins/Kirloskar/Volvo Penta

Scope. **Bidder has to Commission two DG sets , one for PDC1 and PDC2 and another one for DR site as per following requirements & specifications as per the detailed Technical Specifications & drawings as given in the tender**

Introduction

Two DG sets are required for this project. The set shall automatically start upon mains power failure depending on the line loads, run up to full speed within 6 seconds of power failure. The set shall be provided with a multiple start mechanism with indication of alarm for "failed to start" condition. A Tachometer switch shall provide control for the start mechanism and also for the "run" indications. The set shall be skid mounted on independent foundation. The acoustic treatment shall ensure a maximum sound pressure not more than 68 dB (A) at 1 meter from the room during the day and 45 dB (A) at the neighbour's premises during night, while running on partial or full load. This condition shall apply to the engine exhaust noise levels also. A vertical type "Critical" silencer shall be fitted on the exhaust pipe after the flexible coupling to reduce the exhaust noise. The exhaust gases shall be piped to the top of the building covering full height of the building. The pipe shall be thermally insulated with ceramic insulation and covered overall with aluminium jacketing. The exhaust pipe and Critical Silencer shall be fixed on a steel structure which shall be rigidly fixed to external wall vertically.

Specification for Equipments Included In Tender Design Data & Technical Specification

A. ENGINE

The basic diesel engine shall be Water cooled diesel engine with exhaust Turbo charging and charge air cooling, four valve, individual cylinder heads with exhaust valve rotators, fuel oil pump, fuel duplex filter with diverter valve, fuel injection system, electronically controlled injection, lube oil circulation and coolant thermostats for main cooling and charge air cooling circuit, necessary drives, dry exhaust manifolds, vibration dampers, all necessary pipe work, electric starter suitable for 24 V DC, Generator 28V DC, Electronic speed governor, Fuel filters, Oil dip stick, Oil extraction equipment with hand pump, set of air filters including maintenance indicators, exhaust bellows with connecting flange.

B. GENERATOR

415 Volts, 3 Phase, 50 Hz Generator with Class F Insulation for both stator and rotor with high response static exciter and automatically operated regulator suitable to maintain the voltage within 1% of set value having response time not more than 1 second.

C. SWITCH BOARD – AUTO SYNC PANEL

The Switch Board shall be of standard design, free standing, dust and vermin proof and wired upto terminals ready for installation. The Switch board with Auto Synchronizing Facility included Auto Start and Auto OFF facility.

AUTO START LOGIC

The DG set with enclosure and Auto Start Logic. The Panel should have provision to receive reference EB Supply through potential free contacts to enable connection of external audio alarm in case EB Supply has resumed. Separate battery charger cost to be indicated and the reference EB Supply can be used to charge the batteries. The Auto Start Logic shall be in such a way that the moment EB supply has failed or if the voltages reduce to a pre-determined level, it shall be detected through a voltage monitor and a command shall be given to DG to start with a timer. After the DG voltage has built up to a certain level, the command for changing over of motorized MCCBs from EB to DG or vice versa shall be given.

When the EB supply gives normal voltage or has resumed, the command to change over shall be issued with a timer. However, the /stopping of the DG shall be only after the DG has run for about 5 minutes on no load basis for it to cool down.

D. BATTERY CHARGER AND BATTERY

24 Volts Battery with Float cum boost charger.

E. CABLES

Power cables & Control cables are interconnected to use between Generator and Auto Sync Auto load Sharing panel. The required cables for all auxiliary equipment are to be included in the scope of supply.

All Starters and auxiliary devices / drives if any required should be Included in the scope of supply

Audio Alarm and Indicators

A separate 24 Window annunciation panel shall be installed in the panel for indicating the following conditions on both sets. A common alarm shall also be sound locally.

- Engine Run Condition
- Set failed to start
- High Water temperature
- Low Lub Oil Pressure
- Engine Over Speed
- System Power ON
- MCCB Open
- Under Voltage
- Over Voltage
- Frequency Out of Limit
- Over current trip
- Earth Fault
- Reverse Power Trip
- Reverse KVA Trip
- Low and High Fuel level
- Fail to Synchronize

- DC Voltmeter to measure battery voltage
- DC Ammeter in the trickle charging Kit.
- DG Set speed in RPM
- Hours Run Meter
- 2 Nos. CTs of 1000/ 5 A of Class 5 P 10 for Protection.

DUTY CONDITIONS

The Generator shall be capable of starting and running continuously for about 12 hours.

GENERAL

- The DG must be stiffened properly and reading for noise and vibration at full variable condition to be checked before dispatch to Site. Expansion bellows to be provided before and after silencer.
- bidder would be responsible for conducting the Load Test of D.G set for 6 hours with Diesel (Load to be arranged by the Tenderer).
- All consumables towards testing of DG at the factory and project site shall arranged by the bidder till the issue of commissioning certificate.
- bidder shall obtain permission / approval from the Board for the installation of the DG Set as per exact Rules at their own cost.
- BMS integration through MODBUS protocol with RS485 interface should be provided

Technical Compliance for DG set

Diesel Engine – **Diesel Engine, water cooled, Naturally Aspirated, developing required rated KVA@1500 RPM but with minimum capacity as specified elsewhere**, under NTP conditions of BS: 5514, with Dry Type Air Cleaner, Compact Radiator with Recovery Bottle and Pusher type Fan, Engine with Coolant, Engine mounted panel with wiring harness, Holset Coupling and Industrial Silencer, as per engine manufacturers design standards.

Alternator – Standard design Alternator, rated at 0.8 PF, 415 Volts, 3 Phase, 4 wires, 50 cycles/sec, 1500 RPM, self-excited and self regulated, with brushless excitation, Self- ventilated, Screen Protected Drip Proof, Insulation Class "H", enclosure IP 23. The A.C. Generator shall be Horizontal foot mounted single bearing type and shall be fitted with Automatic Voltage Regulator (AVR) for Voltage regulation of +/- 1% or better**. The Alternator generally conforms to BS:5000/IS: 4722 and suitable to deliver output of the engine capacity having required rated KVA.**

Base Frame – Sturdy, fabricated, welded construction, channel iron Base Frame for mounting the above Engine and Alternator.

ControlPanel – Cubicle type, floor mounting Control Panel, with hinged doors, bottom gland plate and accommodating the following:

- 1-No. ACB or Molded Case Circuit Breaker
- 3-No.'s Ammeters /1 No. Ammeter with Selector Switch

FORM-A

(Network Actives)

"LETTER OF AUTHORITY CUM UNDERTAKING"

Date: _____

To,

_____

_____

Subject: **Letter of Authority cum Undertaking**

Tender Ref. No.: _____ **dated _____**

Dear Sir,

We hereby authorize _____ who will fulfill the requirements of the tender enquiry ref. no. _____, dated _____ to quote/ negotiate and service the equipment as required in the above tender enquiry.

This authorization is valid for the following equipment for which we are the OEM:

Our Spares Logistic centers in India are at the following locations:

We also undertake that we will not change the authorized agency during the tenure of the contract equipment supply period. This undertaking shall stand valid irrespective of any changed relationship between us and the authorized agency during this tender.

The authorized agency would ensure reliable service during complete lease period. **In case of any default, we will identify another authorized partner with similar certifications/capabilities and extend support to the new partner on the same terms and conditions as negotiated and finalized in this tender enquiry.**

(Authorized Signatory)

For _____ Place:

Date:

Note: This 'Letter of Authority' should be issued on the letterhead of OEM and enclosed in Part-I.

Name: Company Seal

Signature: with Date:

FORM-B

(Network Passives)

"LETTER OF AUTHORITY CUM UNDERTAKING"

Date: _____

To,

_____

_____

Subject: **Letter of Authority cum Undertaking**

Tender Ref. No.: _____ **dated _____**

Dear Sir,

We hereby authorize _____ who will fulfill the requirements of the tender enquiry ref. no. _____, dated _____ to quote/ negotiate and service the equipment as required in the above tender enquiry.

This authorization is valid for the following equipment for which we are the OEM:

1. _____
2. _____
3. _____
4. _____
5. _____

We also undertake that we will not change the authorized agency during the tenure of the contract equipment supply period. This undertaking shall stand valid irrespective of any changed relationship between us and the authorized agency during this tender.

The authorized agency would ensure reliable service during complete lease period. **In case of any default, we will identify another authorized partner with similar certifications/capabilities and extend support to the new partner on the same terms and conditions as negotiated and finalized in this tender enquiry.**

(Authorized Signatory)

For _____ Place:

Date:

Note: This 'Letter of Authority' should be issued on the letterhead of OEM and enclosed in Part-I.

Name: Company Seal

Signature: with Date:

General Terms and Conditions

1. BIDDER TO INFORM HIMSELF FULLY:

1.1. The bidder shall closely peruse all the clauses, specifications and requirements and drawings etc., specified in the tender documents, and the offer made should be in accordance with these documents. If bidder requires any clarification and additional information on any of the tender documents/conditions, the bidder shall contact the BHEL Official inviting bids with due return request **one week before the due date and any queries will not be entertained after this.**

1.2. Bidders are advised to study all the tender documents carefully and submit their offer and the Bidder is obliged to honor the offer without any modifications. Any offer not meeting the scope/specifications, terms, conditions, and any other clause specified in the tender documents shall be liable for rejection.

2. PROCEDURE FOR SUBMISSION OF BIDS

2.1 Tender documents may also be downloaded from www.bhel.com and www.tenders.gov.in

2.2 Tenders shall be received upto 1400 Hours (P.M) on the said due date and be opened on the same day at 14.30 Hours (P.M). Tenders received after 1400 Hours (P.M) would not be opened. The times indicated are Indian Standard Time (IST).

2.3 Offer shall be made in two parts in separate envelopes, as specified below.

Part-I: Techno-Commercial Bid

This part shall consist of the following documents in a separate envelope:

a. Technical Specifications as per the format given in Annexure-III duly signed by Authorised signatory.

b. The Scope, Terms and Conditions as per the format given in Annexure-II, duly signed by Authorised signatory.

c. The General Terms and Conditions as given in Annexure-IV , duly signed by Authorised signatory.

d. Authorisation Letter from the OEM duly signed by Authorised signatory.

e. Price Bid without price/values as per Annexure-VI duly signed by Authorised signatory..

f. Proof / record of Bidder's experience and / or qualifications as requested in FORM-E duly signed by Authorised signatory.

g. All the other documents as mentioned in Clause-10 of this document.

h. Technical offer should contain Complete BOM with product part number and quantity.

Part-II: Price Bid

This part shall consist of the following documents in a separate envelope: