An ISO 9001 Company

Bharat Heavy Electricals Limited
(High Pressure Boiler Plant)
Tiruchirappalli – 620014, TAMIL NADU, INDIA
CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY **NOTICE INVITING TENDER**	Phone: +91 431 257 7653 Email : skaruna@bheltry.co.in spsy@bheltry.co.in kmk@bheltry.co.in Web : www.bhel.com

TWO PART BID Tender to be submitted in two Parts	**Enquiry Number:** **2621700007**	**Enquiry Date:** **05.12.2017**	**Due date for submission of quotation:** **20.12.2017**

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity
10	High Mast Lighting System (LED) as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or https://eprocure.gov.in/epublish/app)	**1.00 No.**

Important points to be taken care during submission of offer

1. **Delivery required 8 Weeks from the date of purchase order.**
2. **Erection & Commissioning period required 4 Weeks from the date of intimation by BHEL to vendor for deputation of their Engineers for E&C.**
3. **Compliance Form No: TRY/IND/08 to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.**
4. **All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.**

BHEL's General guidelines / instructions (refer MM / CE / GENL / 001) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site http://www.bhel.com or from the Government tender website https://eprocure.gov.in/epublish/app under above Enquiry reference.

(This is not an E-tender, please submit your offer in hard copies) Tenders should reach us before 14:00 hours on the due date Tenders 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	Yours faithfully, For **BHARAT HEAVY ELECTRICALS LIMITED** Manager / Capital Equipment / MM

S.PARTHASARATHY
MANAGER
CAPITAL EQUIPMENT / MM
BHEL, TRICHY-620014.

PART-A

Pre-Qualification Criteria for High Mast lighting system (LED)

Sl. No.	Description	Bidder to confirm
1	The bidder shall be OEM or OEM authorized dealers. In case of authorized dealers, valid dealership certificate shall be enclosed with the offer.	
2	List of the customers / companies to which similar installations supplied & commissioned by the bidder	
3	Performance certificate from minimum one customer/ company regarding satisfactory performance of the Highmast lighting system for a minimum period of one year supplied to them on customer letter head shall be submitted. PO copy of the same shall be enclosed with the offer.	
5	Bidders shall quote for supply, erection, testing and commissioning of the installations and allied equipments as per the entire scope of work.	

Note: bidder/bidder should conform all the above said points without which the offer will not be technically considered.

PART B

Technical specification for the High Mast lighting system (LED)

Sl.No.	Description	Vendor to confirm
1	The scope of this specification covers the manufacture, transport, installation, testing and commissioning of the complete lighting system, using Raising and Lowering type of High Mast Towers, including the Civil Foundation Works. BHEL will only provide the supply point at inlet of isolator switch. Isolator switch, feeder pillar & its connecting cable are in the scope of vendor. However, all items required for the safe and efficient operation and maintenance of the lighting system, including the high mast, whether explicitly stated below or not, shall be included by the Vendor.	
2	Supply of 20 meters High Mast system with all accessories including but not restricted to the following. (a) Mast shaft in two section, hot dip galvanised and suitable for wind velocity as per IS 875 part 3. (b) Head frame, steel wire rope of min. 6 mm dia, double Drum winch (c) Galvanised Lantern carriage arrangement suitable for 18 nos. luminaries & its control gear boxes and lighting finial. (d) Integral power tool installed inside base compartment for its operation. (e) The 20 mtr. Highmast lighting system should be of BAJAJ,PHILIPS,CROMPTON,GE or any other reputed makes acceptable to BHEL	
3	Supply of foundation bolts manufactured from special steel along with nuts, washers, anchor plate and templates .	
4	Design, supply and casting of suitable shallow foundation with M-15 concrete for the High mast considering safe soil bearing capacity & wind pressure at BHEL Trichy.	
5	Supply of 18 nos. 200W LED Flood light fittings and other required control gear boxes suitable for operation of 230V, 50 Hz, a.c. supply. Make: Havells, Tejaslite, MIC, Philips, Goldwyn, Bajaj, Crompton Greaves, Unilumin, Birla, laxman Sylvania, Osram, Syska, Finolex, HPL, Instapower, Promptec, Ready, QHL or any other makes acceptable to BHEL.	
6	Supply of twin dome aviation obstruction light with 2 nos. Red LED lamps & lightning arrester.	

Sl.No.	Description	Vendor to confirm
7	Supply of 3 nos. of 50 mm dia.length of 2.5mts with Class "C" GI pipe earthing system confirming to I.S.3043 for high mast (1 no. for Mast,1 no for lightning arrestor, 1 no. for power control panel). Inter connections of equipment to earth pit shall be made by using 50X6 mm Hot Dip GI flat.	
8	Supply of control panel housing suitable control circuit for the operation of the mast, two nos precision digital timer for automatic ON / OFF control of lights and required controls for the power tool motor.(make of the timer EAPL /L&T/MDS/GE/SIEMENS). Two timers and two main power contactors shall be supplied for enabling single phase operation of the mast.	
9	Erection / Installation and commissioning of the High Mast system comprising of foundation, mast and its accessories, aviation warning lamps, lightning arrester, trailing cable, earthing, luminaires, control panel etc. with the help of suitable equipments.	
10	3 sets of wiring / connection diagram, O&M manual to be supplied along with each high mast.Single copy of make,rating details,technical details and catalogue of all the bought out items used in the panel should be submitted along with the material.	
11	Technical leaflet giving the dimensions, features are to be attached with the offer. The fitting offered should be suitable for outdoor application confirming to IP 65 or better. The gaskets sealing should be pasted around the fitting firmly to prevent rain water entry into the fitting. The lamp fixing bracket on the tower shall be designed to hold all the fittings in the same axis.	
11.1	The electrical works should be carried out by a licensed electrical contractor.	
12.0	General Features	
12.1	Winch	
	The winch shall be of completely self sustaining type, without the need for brake shoe, springs or clutches. Each driving spindle of the winch shall be positively locked when not in use. Individual drum also should be operated for fine adjustment of lantern carriage. The capacity, operating speed, safe working load, recommended lubrication and serial number of the winch shall be clearly marked on each winch. The winch drums shall be grooved to ensure perfect seat for stable and tidy rope lay, with no chances of rope slippage.The rope termination in the winch shall be such that distortion or twisting is eleminated and at least 5 to 6 turns of rope remains on the drum even after the lantern carriage is fully lowered and rested on the rest pads. It should be possible to operate the winch manually by a suitable handle by an integral power tool.(winch should be standard and reputed make)	

Sl.No.	Description	Vendor to confirm
12.2	Head Frame	
	The head frame, which is to be designed as a capping unit of the mast, shall be welded steel construction, galvanised both internally and externally after assembly. The top pulley shall be of appropriate diameter, large enough to accommodate the stainless steel wire rope and the multi-core electric cable. The pulley block shall be made of die cast Aluminium Alloy. Pulleys made of synthetic materials such as Plastic or PVC are not acceptable. Self-lubricating bearings and stainless steel shaft shall be provided to facilitate smooth and maintenance free operation for a long period. The pulley assembly shall be fully protected by a canopy galvanised internally and externally. Close fitting guides and sleeves shall be provided to ensure that the ropes and cables do not get dislodged from their respective positions in the grooves. The head frame shall be provided with guides and stops with PVC buffer for docking the lantern carriage.	
12.3	Stainless Steel Wire Ropes.	
	The suspension system shall essentially be without any intermediate joint and shall consist of only non-corrodible stainless of AISI 316 or better grade. The stainless steel wire ropes shall be of suitable size, the central core being of the same material. The overall diameter of the rope shall not be less than 6 mm. The thimbles shall be secured on ropes by compression splices. Two continuous lengths of stainless steel wire ropes shall be used in the system and no intermediate joints are acceptable in view of the required safety. No intermediate joints / terminations either bolted or else, shall be provided on the wire ropes between winch and lantern carriage.Certificate to this effect has to be obtained from the manufacture of this rope to confirm the above requirement.	
12.4	Electrical system, cable and cable connections.	

Sl.No.	Description	Vendor to confirm
	A suitable terminal box shall be provided as part of the contract at the base compartment of the high mast for terminating the incoming cable. The electrical connections from the bottom to the top shall be made by special trailing cable(FRLS) and size of the cable shall be minimum 4 core 6 sq.mm. multistrand PVC flexible copper cable. At the top there shall be weather proof junction box to terminate the trailing cable. Connections from the top junction box to the individual luminaries shall be made by using 3 core 2.5 sq.mm. Copper flexible HR PVC cables of reputed make with ISI mark.The system shall have inbuilt facilities for testing the luminaries while in lowered poistion. Also suitable provision shall be made at the base compartment of the mast to facilitate the operation of internally mounted, electrically operated power tool for raising and lowering of the lantern carriage assembly. The trailing cables of the lantern carriage rings shall be terminated by means of metal clad, multipin plug and socket provided in the base compartment to enable easy disconnection whenever required.	
12.5	Power Tool for the Winch	
	A suitable high-powered, electrically driven, internally mounted power tool, with manual over ride shall be supplied for raising and lowering of the lantern carriage for maintenance purposes. The speed of the power tool shall be to suit the system. The power tool shall be single speed, provided with a motor of the required rating. The power tool shall be supplied complete with suitable control. The capacity and speed of the electric motor used in the power tool shall be suitable for the lifting of the design load installed on the lantern carriage. The power tool mounting shall be so designed that it will be not only self-supporting but also aligns the power tool perfectly with respect to the winch spindle during the operations. Also, a handle for the manual operation of the winches in case of problems with the electrically operated tool shall be provided.The quality of the gear box to withstand minimum 500 operations to be ensured by supplier,Gears (worm gear with worm shaft) from good quality material ensure for durability.	
12.6	Lightning Finial	
	One number heavy duty hot dip galvanised lightning finial shall be provided for each mast. The lightning finial shall be minimum 1.2 M in length and 12mm dia. shall be provided at the center of the head frame. It shall be bolted soildly to the head frame to get a direct conducting path to the earth through the mast.	
12.7	Aviation Obstruction Lights :	

Sl.No.	Description	Vendor to confirm
	Suitable 2 Nos. 230 V, LED Aviation Obstruction Lights of reliable design and reputed manufacturer shall be provided on top of each mast	
12.8	Earthing Terminals :	
	Suitable earth terminal shall be provided at a convenient location on the base of the mast, for lighting and electrical earthing of the mast.	
12.9	Feeder Pillar	
	Each mast shall be provided with a feeder pillar and control box of approax. size 750mm height 450mm breadth and 250mm depth fabricated with 14 SWG CRCA sheet with hinged doors and locking arrangement,out door type,stand mounting,dust and vermin proof as per IP55,panel will have powder coat finish to shade 631 of IS and stand black enamel paint. The feeder pillar control box to be fixed on the stand by 50mm X 50mm X5 mm MS angle and comprise of incoming as 4 pole 63amps 415 volt Legrand/Havells/siemens/L&T make TPN MCB. for incoming, one no.32amps TP MCB for outgoing, one no. 6amps TP MCB for motor control circuit. The 6sq.mm PVC multi strand copper cable for power circuit wiring with colour sleeve and ferrule and 1.5sq.mm PVC multi strand flexible copper cable for control circuit wiring with No. ferrules and insulated copper lug should be used. All the electrical aceessories should be fixed on the 2mm thick base plate with suitable size self threading holes and 3mm thick detachable cable entry bottom plate with suitable cutouts for cable entries. Din rail mounting type ELMEC make 63 amps strips for control circuit feeders pillar shall be mounted near to high mast. Suitable digital timer (as per the Point nos.8) for automatic on-off control with the siemens/L&T make 63amps contractor for incoming supply and 16 amps for motor control and ON-OFF control of the lamps should be provided and connected in the circuit.	
12.10	Each High Mast must be supplied with 1 No 63A MCB as incomer to feeder piller along with 50mm x 50mm x 5mm Angle frame for fixing feeder piller box and 63 A SFU. The SFU should be provided with required canapy and suitable for mounting in outside . The grouting of frame and interconnecting with suitable cable are supplier scope.	
12.11	Power Cable.	

Sl.No.	Description	Vendor to confirm
	The cable of size 3.5 core25 sq.mm. Aluminium conductor, Armoured cables to be used for power supply from the TPN swich disconnector to the feeder pillar by the supplier . The supply of 4 core 6sq.mm HR PVC flexible multi strand copper cable shall be taken from the base compartment of the high mast to the feed pillar control box through the cable entry hole made in the foundation by the supplier.	
12.12	Warranty: The entire systems (including the LED lights and other equipment) shall be warranted for a minimum period of 24 months from the date of commissioning at BHEL Stores/ Site.	
	Note: Point by point confirmation is required from the supplier otherwise the offer will not be considered	