

FOR OFFICIAL USE ONLY

TENDERER'S COPY

NOT FOR PUBLICATION

ORIGINAL COPY

TENDER SPECIFICATIONS

TENDER NO. BHEL: NR (SCT): MSIL: STG & HRSG: 740

FOR

The work of "Erection, Testing, Commissioning, Trial Operation & Handing over of All Mechanical, Electrical ,C&I, Balance of Plant & Material Handling Work of 1x17.5 MW STG & 2x75 TPH HRSG at M/s Maruti Suzuki India Ltd(MSIL) , Gurgaon, Haryana."

PART II – PRICE BID



Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)

RATE SCHEDULE

| Sl. No | DESCRIPTION OF WORK | Rate in Rupees (In figures and words) | TOTAL VALUE in Rupees (In figures and words) |
|--------|--|---------------------------------------|--|
| 1.0 | Rate in Rupees per MT for complete work of Erection, Testing, Commissioning, Trial operation and handing over, of 2X75 TPH HRSG and Auxiliaries, 30 M Chimney etc as per tender specifications. (Approximate Weight is 1204 MT as per Annexure- I) | | |
| 2.0 | Erection, Testing, Commissioning, Trial operation and handing over of Piping and their insulation of various piping systems of all types of materials such as AS, CS, SS etc. along with Insulation as indicated under Annexure - II of tender specifications. | | |
| 2.1 | Carbon steel Piping(Approx. 170 MT) | | |
| 2.2 | Alloy steel Piping(Approx. 44 MT) | | |
| 2.3 | Alloy steel Piping(Approx. 15 MT) | | |
| 2.4 | Rate in Rs / MT for complete work as per tender specification for application of insulation of piping system (Approximately 70 MT) | | |
| 3.0 | Lumpsum price for complete scope of work as per tender specification for items indicated under Annexure-III for 1 x 17.5 MW STG(including auxiliaries & BOP equipments) (Items as per Annexure- III.) | | |
| | MATERIALS HANDLING | | |
| 4.0 | Rate in Rupees per MT for entire scope of work as defined in this tender in respect of ALL Items/Equipments from Trucks/Trailers other vehicles directly coming to site/store sheds/storage yard (Approx. tonnage to be handled 2026 MT) | | |
| 5.0 | Lump sum price for entire scope of work as defined in this Tender Specification in respect of following items from Trailers, directly coming to site & unloaded MANUALLY (by sleeper & Jack method) | | |
| 5.1 | LUMP SUM PRICE FOR Generator transformer Approximate weight: 60 MT | LS | |

| | | | |
|-----------|--|--------------------------------------|--|
| | Approx. Dimensions: 7.5X7.8x6.6 M Quantity - 1 (One No.). | | |
| 6. | TOTAL RATE FOR ALL STRUCTURAL STEEL ITEMS(AS PER ANNEXURE-A1) | UNIT RATES AS PER ANNEXURE-A1 | |
| 7. | TOTAL RATE FOR ALL ELECTRICAL ,C&I ITEMS (AS PER ANNEXURE-B1) | UNIT RATES AS PER ANNEXURE-B1 | |
| | | | |
| | GRAND TOTAL AMOUNT IN (Rs.) | | |

(Seal and Signature of Tenderer)

NOTE-

1. In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item but the work, if awarded, will be on the lowest quoted rate obtained against that item.
2. The bidders shall enter both 'Unit Rate' & 'Amount'. In case of any mismatch between 'Total Amount based on Unit Rate' & 'Total Amount as quoted', the higher of the two shall be considered for evaluation and the lower of the two shall be considered for award.
3. The quantities indicated against each item above are tentative and are liable to vary depending upon the site requirement. The contractor has to supply / install actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out.
4. Evaluation of the bids shall be done based on total price against this BOQ.

BOQ CUM RATE SHEDULE FOR STRUCTURAL STEEL**Annexure-A1**

| 1 | STRUCTURAL STEEL | UNIT | QTY. | Rate in Rupees | Amount in Rupees |
|------|---|---------|------|----------------|------------------|
| 1.01 | Supplying, fabricating using approved quality electrodes of 6013 or low hydrogen 7018 for plate thickness above 20 mm, pre-heating, packing and delivering at the stores or at site of the following categories of Structural Steelwork including cost of steel,all necessary bolts, nuts & washers with a shop coat of approved Inorganic Zinc Silicate coating of 65-75 micron DFT after cleaning with manual / power tool cleaning to grade St-2 / St-3 of SIS 05 5900 or cl. 7.2.1.1 & 7.2.1.2 of IS:1477 (part-1)etc. all complete as per drawings and specifications. | | | | |
| | Steel work consisting of portal frames , laced & plated columns, beams, fabricated with standard rolled sections, plates , flats, angles pipes etc. | M.T. | 220 | | |
| 1.02 | Erection of structural steel as described in 6.1 including grouting under bases using ordinary/non-shrink grouts ,with necessary erection bolts, nuts & washers, welding electrodes of 6013 or low Hydrogen electrodes of 7018 grade, wherever required, etc all complete as drawings and specifications. (Permanant bolts and Grouting will be paid for under separte items) | M.T | 220 | | |
| 1.04 | Supplying and erecting hot dip galvanised Heavy Duty GI floor gratings with minimum coating of 710 gms per sq.m. , staircase steps as per dwg including all fasteners, painting with two coats of aluminium paint at the places of site welding etc all complete as per specifications. | M.T | 20 | | |
| 1.05 | Supplying, fabricating, fixing in position 32NB MS pipe handrails at various elevation including cost of materials, consumables, labour, painting with synthetic enamel paint etc. all complete as per drawing and specifications.(Length of finished Railing only will be measured for payment) | R.M. | 100 | | |
| 1.06 | Providing complete Protective coating system to Structural Steel with one coat of Inorganic Zinc Silicate primer as touchup paint at all damaged surfaces,65 microns DFT+ two coats of Chlorinated Rubber Zinc Phosphate Primer,40 microns DFT each coat + two coats of Chlorinated Rubber finish paint,40 microns DFT each coat , with all materials, consumables and scaffoldings complete as per EIL specifications and drawings. | M.T | 220 | | |
| 1.07 | Supplying and fixing in position of high strength structural bolts, HSFG/HT bolts (of property grade 8.8 and product grade "C" as per IS: 1367 and conforming to IS: 3757 and high strenght structural hardened and tempered nuts (of property class"8" as per IS"1367) conforming to IS:6623 with hardened and tempered washeres as per IS:6649 etc upto and inclusive of 39mm diameter and upto 300mm long for structural steel work complete as per specification, drwaings and instructions of engineer. | Quintal | 5 | | |

NOTE-

5. In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item but the work, if awarded, will be on the lowest quoted rate obtained against that item.
6. The bidders shall enter both 'Unit Rate' & 'Amount'. In case of any mismatch between 'Total Amount based on Unit Rate' & 'Total Amount as quoted', the higher of the two shall be considered for evaluation and the lower of the two shall be considered for award.
7. The quantities indicated against each item above are tentative and are liable to vary depending upon the site requirement. The contractor has to supply / install actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out.
8. Evaluation of the bids shall be done based on total price against this BOQ.

BOQ CUM RATE SHEDULE FOR E/T/C of ELECTRICALS, C&I EQUIPMENT PACKAGE
Annexure- B1

| SL NO | ITEM DESCRIPTION | UNIT | QTY | Rate in Rupees | Amount in Rupees |
|-------|--|------|-----|----------------|------------------|
| | HT/LT TRANSFORMERS: | | | | |
| 1 | 11/11.5kV,20/25MVA,ONAN,GENERATOR TRANSFORMER Total Weight 60MT 7500x6800x 6600mm Oil Qty. 14000 ltr. | NO. | 1 | | |
| 2 | 11/0.433kV,2MVA,ONAN,STATION SERVICE TRANSFORMER Total Weight 8MT 3000X3500X3300 Oil Qty. 1400 ltr. | NO. | 3 | | |
| 3 | Neutral Grounding Resistor(11kV) for Gen. transformer Earthing 1500X1000X1500 | SET | 01 | | |
| | HT SWITCHGEAR | | | | |
| 4 | 11kV Board#201 consists of approx. 3 panels , Approx. dimensions of each panel 820X2660X2500 mm | SET | 1 | | |
| | LT BUS DUCT, | | | | |
| 5 | CR Enclosure,3200A,415V,NPSB 5000X1200X800 mm | NO. | 3 | | |
| 6 | Isolation Breaker panels(11kV) 820X2660X2500 | NO. | 1 | | |
| | LT SWITCHGEAR | | | | |
| 7 | 415 V, PMCC-1 (9600x1754x2430) | No. | 1 | | |
| 8 | 415 V, PMCC-2 (14400x1754x2430) | No. | 1 | | |
| 9 | STG MCC1 (8000x1350x2430) | No. | 1 | | |
| 10 | 415V BOP MCC-1 (10500x1350x2430) | No. | 1 | | |
| 11 | HRSG MCC-1&2 (6200x1350x2430) | No. | 2 | | |
| 12 | 110V, UPS DB (12000x900x2430) | No. | 1 | | |
| 13 | 110V, STATION DCDB (3200x900x2430) | No. | 2 | | |
| 14 | 415V, ACDB (1600x900x2430) | No. | 2 | | |
| 15 | Start/Stop PB stations 180X285X125 | No. | 90 | | |
| 16 | Emergency Stop PB 145X245X116 | No. | 10 | | |
| | BATTERY SYSTEM | | | | |
| 17 | 110 V STATION BATTERY Chargers (2500x830x2000) | Set | 1 | | |

| | | | | | |
|----|--|-----|-------|--|--|
| 18 | 110 V STATION Battery System (Ni-Cd) 800Ah,88 cells, (4370x830x2500) | Set | 1 | | |
| | LT POWER CABLES LAYING,DRESSING,CLAMPING & TERMINATION | | | | |
| | 1.1kV ,Armoured, Al Conductor ,PVC insulated FRLS outer-sheathed | | | | |
| 19 | 4CX16 SQ MM | Mtr | 500 | | |
| 20 | 4CX6 SQ MM | Mtr | 500 | | |
| 21 | 3.5C X 300 SQ MM | Mtr | 1000 | | |
| 22 | 3.5C X 185 SQ MM | Mtr | 1500 | | |
| 23 | 3.5C X 120 SQ MM | Mtr | 500 | | |
| 24 | 3.5C X 95 SQ MM | Mtr | 500 | | |
| 25 | 3C X 400 SQ MM | Mtr | 960 | | |
| 26 | 3C X 300 SQ MM | Mtr | 1000 | | |
| 27 | 3C X 185 SQ MM | Mtr | 500 | | |
| 28 | 3C X 120 SQ MM | Mtr | 1500 | | |
| 29 | 3C X 70 SQ MM | Mtr | 500 | | |
| 30 | 3C X 50 SQ MM | Mtr | 960 | | |
| 31 | 3C X 35 SQ MM | Mtr | 1500 | | |
| 32 | 3CX16 SQ MM | Mtr | 500 | | |
| 33 | 3C X 10 SQ MM | Mtr | 1000 | | |
| 34 | 3CX6 SQ MM | Mtr | 3840 | | |
| 35 | 3CX4 SQ MM | Mtr | 19200 | | |
| | CONTROL/SIGNAL/ CABLES LAYING,DRESSING, CLAMPING & TERMINATION | | | | |
| 36 | 16CX2.5 SQ MM | Mtr | 1500 | | |
| 37 | 12CX2.5 SQ MM | Mtr | 4800 | | |
| 38 | 7CX2.5 SQ MM | Mtr | 3000 | | |
| 39 | 7CX1.5 SQ MM | Mtr | 9600 | | |
| 40 | 5CX2.5 SQ MM | Mtr | 1500 | | |
| 41 | 3CX2.5 SQ MM | Mtr | 10000 | | |
| 42 | 2CX2.5 SQ MM | Mtr | 2400 | | |
| 43 | 2CX1.5 SQ MM | Mtr | 1920 | | |
| 44 | 1PX1.5 SQ MM | Mtr | 21000 | | |
| 45 | 2PX1.5 SQ MM | Mtr | 1760 | | |
| 46 | 6PX0.5 SQ MM | Mtr | 31000 | | |
| 47 | 12PX0.5 SQ MM | Mtr | 32000 | | |
| 48 | 12PX1.5 SQ MM | Mtr | 1000 | | |
| 49 | 1TX1.5 SQ MM | Mtr | 2300 | | |
| 50 | 8TX1.5 SQ MM | Mtr | 6500 | | |
| 51 | Scanner cables | Mtr | 3840 | | |
| | CABLE TRAYS ERECTION INCLUDING SUPPORT & COVERS FABRICATION | | | | |
| 52 | Ladder/ Perforated type Cable tray, W=600mm | Mtr | 2000 | | |
| 53 | Ladder/ Perforated type Cable tray, W=300mm | Mtr | 1500 | | |
| 54 | Perforated type cable tray, W=150mm | Mtr | 600 | | |
| 55 | Perforated type cable tray , W=50mm | Mtr | 250 | | |
| | CABLE TRAY ACCESSORIES | | | | |
| | Ladder/ Perforated type Horizontal 90 deg bend- 900/600 mm radius, Vertical Up/Down-900/600 mm radius, Tees -900/600 mm radius, | | | | |
| 56 | 900 MM Wide | No. | 100 | | |
| 57 | 600 MM Wide | No. | 80 | | |
| | REDUCERS LADDER/ PERFORATED TYPE (50%LHS/50%RHS) | | | | |
| 58 | 600MM - 300MM | No. | 20 | | |
| 59 | 300MM - 150MM | No. | 20 | | |
| | INSTALLATION & FABRICATION OF STRUCTURE STEEL | | | | |
| | Channel , Angles, Flats etc. | MT | 10 | | |

| PROTECTION SYSTEM | | | | | |
|---|---|-----|-----|--|--|
| 60 | GI STRIP FLAT 75 X 10 mm | Mtr | 400 | | |
| 61 | GI STRIP FLAT 50 X 6 mm | Mtr | 400 | | |
| 62 | GI STRIP FLAT 25 X 6 mm | Mtr | 150 | | |
| 63 | 8 SWG GI WIRE SOLID | Mtr | 150 | | |
| 64 | 16 SWG GI WIRE SOLID | Mtr | 150 | | |
| PLANT ILLUMINATION SYSTEM | | | | | |
| 65 | Bulk head luminaire suitable for 110V DC, 100W GLS incandescent lamps | Nos | 10 | | |
| 66 | Well glass luminaire along with non integral control gear box suitable for use with HPMV 125W lamp (IP65) | Nos | 150 | | |
| 67 | 125W HPMV | Nos | 280 | | |
| 68 | 100W GLS Lamps | Nos | 15 | | |
| 69 | 3 meter/2 meter pole | Nos | 150 | | |
| 70 | Industrial metal clad type 5/15A socket with switch | Nos | 10 | | |
| 71 | 63A TPN welding receptacles (Safe area) | Nos | 8 | | |
| 72 | 6/12 AC Outdoor Lighting Panels | Nos | 5 | | |
| CONTROL PANELS/RACKS/CONSOLES | | | | | |
| 73 | DAVR Panel 1200X1200X2324 mm | No. | 01 | | |
| 74 | DCS Panel 750X750X2415 | No. | 27 | | |
| 75 | Network panel 800X800X2415 | No. | 01 | | |
| 76 | LOCAL BURNER PANEL 1000X900X2430 | No. | 02 | | |
| 77 | BMS Panel 800X800X2415 | No. | 02 | | |
| 78 | max OPC Station, 24" TFT Monitor | No. | 06 | | |
| 79 | Printers(Colour laser, mono laser, Dot Matrix)with Printer Table & Accessories 482X451X325 mm | No. | 03 | | |
| 80 | Network switches 750X750X2415 | No. | 01 | | |
| INSTALLATION,CALIBRATION&COMMISSIOING OF LOCAL / FIELD INSTRUMENTATION / EQUIPMENT | | | | | |
| 81 | Flow Nozzles | Nos | 12 | | |
| 82 | Temp. Transmitter/Pressure Transmitter /Differential Pressure Transmitter | Nos | 210 | | |
| 83 | Level Gauge/ Level Switch /Radar Level instruments/ Level transmitters | Nos | 18 | | |
| 84 | Solenoid Valves | Nos | 06 | | |
| 85 | Pressure Gauges/ Temp. Gauges/Diff. Pressure Gauges | Nos | 200 | | |
| 86 | Pressure Switch/Temp. Switch | Nos | 26 | | |
| 87 | Limit Switch | Nos | 50 | | |
| 88 | Air Filter Regulators | Nos | 280 | | |
| 89 | Electric Heater | Nos | 04 | | |
| 90 | MTM THERMOCOUPLE | Nos | 76 | | |
| 91 | Thermocouple/Temperature Element (RTD) | Nos | 114 | | |
| 92 | Vibration/Axial Disp./Velocity probes | Nos | 16 | | |
| 93 | Speed measuring Loop | Nos | 6 | | |
| 94 | Aviation lamp | Nos | 06 | | |
| 95 | Lightning protection | Nos | 02 | | |
| 96 | EWLI | Set | 04 | | |
| 98 | SWAS system | SET | 01 | | |
| 99 | ANALYSER(SMOKE DENSITY / Sox/ Nox/CO/HC/pH ANALYSER) | SET | 28 | | |
| 100 | Thermometers(Bimettalic) | Nos | 11 | | |

| | | | | | |
|-----|---|------|-----|--|--|
| 101 | Flame Scanner Assy. | Nos | 10 | | |
| 102 | Flame intensity meter | Nos | 10 | | |
| 103 | THERMOWELLS | Nos | 68 | | |
| 104 | Hand Held Communicator | Nos | 01 | | |
| 105 | PA System | Set | 01 | | |
| 106 | Master Clock System | Set | 01 | | |
| 107 | Local gauge rack/Board 1700X1600 | Nos | 25 | | |
| 108 | GI pipe 1" | Mtrs | 200 | | |
| | IMPULSE PIPES/ TUBES ALONG WITH FITTINGS | | | | |
| 109 | SS TUBE 1/2" | MTRS | 150 | | |
| 110 | SS TUBE 1/4" | MTRS | 300 | | |
| 111 | Cu TUBE 1/4" | MTRS | 200 | | |
| 112 | SS PIPE 1/2" | MTRS | 500 | | |
| 113 | SS PIPE >1" | MTRS | 100 | | |
| 114 | SS PIPE 1/4" | MTRS | 300 | | |
| 115 | SS PIPE > 3/4" | MTRS | 800 | | |
| 116 | CS PIPE > 3/4" | MTRS | 350 | | |
| 117 | AS PIPE > 3/4" | MTRS | 200 | | |
| 118 | SS Pipes 1" for Instrument air | MTRS | 50 | | |
| 119 | JUNCTION BOXES/INDICATION BOXES | | | | |
| 120 | Junction Box up to 24WAYS | Nos. | 80 | | |
| 121 | Explosion Proof Junction Boxes | Nos. | 55 | | |
| | COMMISSIONING/CALIBRATION OF MOTORISED/PNEUMATIC ACTUATOR/GATE/CONTROL VALVES | | | | |
| 122 | Commissioning of Motorised Valves /Actuators | No. | 43 | | |
| 123 | Control Valves/ On-Off Control Valves | No. | 26 | | |
| 124 | Safety Relief valves/ Temperature Safety Valve/ Pressure Safety Valve/ On-Off Control Valves | Nos | 05 | | |

NOTE-

1. In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item but the work, if awarded, will be on the lowest quoted rate obtained against that item.
2. The bidders shall enter both 'Unit Rate' & 'Amount'. In case of any mismatch between 'Total Amount based on Unit Rate' & 'Total Amount as quoted', the higher of the two shall be considered for evaluation and the lower of the two shall be considered for award.
3. The quantities indicated against each item above are tentative and are liable to vary depending upon the site requirement. The contractor has to supply / install actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out.
4. Evaluation of the bids shall be done based on total price against this BOQ.