



**BHARAT HEAVY ELECTRICALS LIMITED,  
TIRUCHIRAPPALLI 620 014  
OUTSOURCING DEPARTMENT**

**NIT: 2024OSB026**  
**NIC TENDER ID: 2024\_BHEL\_41326\_1**  
**CORRIGENDUM**  
**ANNEXURE-D**

The following documents are revised to address below mentioned points (a) to (f).

1. ANNEXURE-A (PQR)
2. Section I A - List of RSs
3. Section-I D-Brief Scope of Work

- a) **PQR-Annexure –A** Report of past experience in fabrication of Radiant Roof Panels / Terminal Tube Bends with fin welding / water wall panel / RH/SH/ECO coils with attachment welding supplied to BHEL Trichy.
- b) **PQR-Annexure-A** Parameters if already evaluated and accepted by BHEL within 6 months for Open Tenders, need not be re-submitted. However, random assessment shall be done for the evaluated parameters at the time of spot assessment.
- c) **Section I A - List of RSs**

| SL. No. | RATE SCHEDULE (RS) | RATE SCHEDULE (RS) DESCRIPTION                           | UoM | Weight (Kgs) | Qty (Nos) | Load Distribution as a % of Weight           | Approx. Material Value |
|---------|--------------------|--|-----|--------------|-----------|--|------------------------|
| 1       | RS01               | Radiant Roof Panel (RRP) – Non-NTPC Projects             | KG  | 3,30,000     | 2600      | L01: 40%<br>L02: 20%<br>L03: 20%<br>L04: 20% | Rs. 588 Lakhs          |
| 2       | RS02               | Terminal Tube bends with fin welding – Non-NTPC Projects | KG  | 90,500       | 3300      | L01: 40%<br>L02: 20%<br>L03: 20%<br>L04: 20% | Rs. 79 Lakhs           |


- d) **Point no. 6 of Section-I D: Form 3B will be vendor's scope**  
IBR inspection fees is in BHEL scope and **not required** to be paid by vendor.

- e) **Point no. 24 of Section-I D: Obtain Stress relieving(SR) co-operation from BHEL Trichy or any other firm approved by IBR.** Extra Rate schedule for stress relieving as mentioned in Section-IB is applicable only when the vendor performs the stress relieving process Inhouse/Outsourced to IBR approved facility. If the vendor chooses to bring the components into BHEL Trichy for stress relieving, extras will **not be applicable**. In such cases, the transportation charges and handling of the material are in vendor's scope.
- f) **Point 27 of Section-I D: Provide Identification and End caps.**  
After hydro test, the water must be drained completely. VCI pellets and Plastic End caps should be provided.

**NOTE:**

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**Participation in NIT 2024OSB026 by a vendor will be considered as acceptance of all Terms & Conditions, including any corrigendum**

|    |  | <b>BHARAT HEAVY ELECTRICALS LIMITED, TIRUCHIRAPALLI</b>   |                  |                      |         |           |
|---|--|---|------------------|----------------------|---------|-----------|
| <b>OUTSOURCING</b>  |  |   |                  |                      |         |           |
| 428/004; 01.02.2017   |  | <b>Pre Qualification Requirement for Radiant Roof Panels (RRP) and Terminal Tube Bends with fin welding</b> |                  |                      |         |           |
| <b>Vendor Name, Address and Contact No.:</b>  |  |   |                  |                      |         |           |
|   |  |   |                  |                      |         |           |
| <b>Report of past experience in fabrication of Radiant Roof Panels / Terminal Tube Bends with fin welding / water wall panel / RH/SH/ECO coils with attachment welding supplied to BHEL Trichy.</b> |  |   |                  |                      |         |           |
| <b>Spot assessment date:</b>  |  |   |                  |                      |         |           |
| <b>Part-A (Mandatory)</b>   |  |   |                  |                      |         |           |
| SI No   | Parameter for evaluation   | Minimum required  | As given by Firm | As observed in Audit | Remarks | Ok/Not Ok |
|   | <b>LAND DETAILS :</b>  |   |                  |                      |         |           |
| 1   | Land area . (If land is taken under lease, registered lease deed for 3 yrs period is required) | 0.5 Acres   |                  |                      |         |           |
| 2   | Covered Shed with concrete flooring  | 3229 sq. ft   |                  |                      |         |           |
|   | <b>EB POWER</b>  |   |                  |                      |         |           |
| 3   | Power capacity   | 100 HP  |                  |                      |         |           |
|   | <b>HANDLING FACILITIES</b>   |   |                  |                      |         |           |
| 4   | Material handling crane capacity with stability certificate (A frame / EOT / Mobile crane)     | 10 MT   |                  |                      |         |           |

| SI No | Parameter for evaluation  | Minimum required  | As given by Firm | As observed in Audit | Remarks | Ok/Not Ok |
|-------|---|---|------------------|----------------------|---------|-----------|
|       | <b>SPECIFIC MACHINES :</b>  |   |                  |                      |         |           |
| 5     | (SMAW)Welding M/c 400 Amps Inverter / Rectifier   | 4 Nos   |                  |                      |         |           |
| 6     | TIG welding machines for tube butt joints   | 2 Nos   |                  |                      |         |           |
| 7     | Tube bending machine - capable of bending up to 76.1 mm dia tubes.  | 1 No  |                  |                      |         |           |
| 8     | Tube boring and chamferring machine   | 2 Nos each  |                  |                      |         |           |
| 9     | Spectrotesting machine - Portable type  | In-house or Outsourced  |                  |                      |         |           |
| 10    | Preheating/post heating - fuel & burner facilities  | 1 No. for each welding centre   |                  |                      |         |           |
| 11    | Heat treatment furnace with IBR approval & with valid calibration - 4m X 4m capability to handle length of 16 to 24m. Temperature range :600 - 780 °C | Inhouse/Outsource/BHEL<br>(If doing at Inhouse / Outsource, relevent IBR documents required.) |                  |                      |         |           |
| 12    | Local SR facility   | Inhouse/Outsource/BHEL<br>(If doing at Inhouse / Outsource, relevent IBR documents required.) |                  |                      |         |           |
| 13    | Hydro testing pumps - 550 Kg/Sq Cm with calibrated pressure gauges  | 1 No  |                  |                      |         |           |
| 14    | Firm approval by IBR for boiler pressure parts  | Must be available   |                  |                      |         |           |
| 15    | Ball & Sponge Test Facility with compressor   | 1 No  |                  |                      |         |           |
| 16    | Spray painting facility   | 1 No or Outsourced from BHEL approved source.   |                  |                      |         |           |
| 17    | D-Meter (for thickness checking)  | 1 No or Outsourced from BHEL approved source.   |                  |                      |         |           |
| 18    | Layout marking facilities required  | 1 No  |                  |                      |         |           |
|       | <b>OVEN</b>   |   |                  |                      |         |           |
| 19    | Electrode Baking oven   | 1 No  |                  |                      |         |           |
| 20    | Electrode Holding oven  | 1 No  |                  |                      |         |           |
| 21    | Flask oven  | 3 Nos   |                  |                      |         |           |

| SI No                    | Parameter for evaluation   | Minimum required                               | As given by Firm | As observed in Audit | Remarks | Ok/Not Ok |
|--------------------------|--|--|------------------|----------------------|---------|-----------|
|                          | <b>INSPECTION FACILITIES</b>   |  |                  |                      |         |           |
| 22                       | LPI Kit  | 1 Set  |                  |                      |         |           |
| 23                       | Level II LPI,MPI and UT,RT (if UT/RT is in house) qualified personnel with valid certificate | 1 Person for each type.                        |                  |                      |         |           |
| 24                       | UT, RT   | In-house or Outsourced from IBR approved firms |                  |                      |         |           |
| 25                       | IBR qualified welders for CS/AS  | 1 person for each category                     |                  |                      |         |           |
|                          | <b>MEASURING INSTRUMENTS</b>   |  |                  |                      |         |           |
| 26                       | Measuring tapes - 5m, 30m *  | 1 No each                                      |                  |                      |         |           |
| 27                       | Vernier caliper - 150 mm   | 1 No   |                  |                      |         |           |
| 28                       | Paint coating thickness meter  | 1 No or Outsourced from BHEL approved source.  |                  |                      |         |           |
|                          | <b>GRINDING MACHINES:</b>  |  |                  |                      |         |           |
| 29                       | Tube cutting machine   | 1 No   |                  |                      |         |           |
| 30                       | Grinding machines  | 3 Nos  |                  |                      |         |           |
|                          | <b>PAN &amp; GST :</b>   |  |                  |                      |         |           |
| 31                       | IT Pan Card No   | Original to be offered for verification        |                  |                      |         |           |
| 32                       | GST No   | Original to be offered for verification        |                  |                      |         |           |
|                          | <b>OFFICE ROOM :</b>   |  |                  |                      |         |           |
| 33                       | Office room with 2 PC / LAPTOP , internet facility and printer                               | Must   |                  |                      |         |           |
| <b>Part-B (Optional)</b> |  |  |                  |                      |         |           |
| 01                       | Gen. set   | --   |                  |                      |         |           |
| 02                       | Stenciling/Engraving/Dot punching facility   | --   |                  |                      |         |           |
| 03                       | Stud welding machine   | --   |                  |                      |         |           |

**NOTE\_1:**

- A. All Measuring instruments/gauges (Tapes - one time calibration) must have valid calibration certificate from any NABL accredited lab.**  
**B. For any outsourced facility mentioned as per checklist, earlier executed POs or valid agreement for facility tie-up must be produced**

**Part-C: Final Recommendation (for BHEL use only)**

**Recommendation after checklist verification:**

| SI No                                 | Parameter for evaluation   | Minimum required | As given by Firm                            | As observed in Audit | Remarks | Ok/Not Ok |
|---------------------------------------|--|------------------|---|----------------------|---------|-----------|
| Recommendation after spot assessment: |  |                  |   |                      |         |           |
| Assessor.1-TCA (Spot assessment):     |  |                  | Assessor.2 - Co-assessor (Spot assessment): |                      |         |           |
| Note 2:                               |  |                  |   |                      |         |           |
| 01                                    | Part-A requirement is a must for qualifying the vendor. Hence, filling up all evaluation parameters is a must and all mandatory facilities shall be available at the time of spot assessment                           |                  |   |                      |         |           |
| 02                                    | Part-B is only optional and need not be considered for disqualifying the vendor.   |                  |   |                      |         |           |
| 03                                    | Parameters if already evaluated and accepted by BHEL within 6 months for Open Tenders, need not be re-submitted. However, random assessment shall be done for the evaluated parameters at the time of spot assessment. |                  |   |                      |         |           |

## NIT 2024OSB026 [Section I A - List of RSs (revised)]

| SL. No. | RATE SCHEDULE (RS) | RATE SCHEDULE (RS) DESCRIPTION                           | UoM | Weight (Kgs) | Qty (Nos)       | Load Distribution as a % of Weight           | Approx. Material Value | Applicability of "Extra Joints" | Pre-Qualification Requirement (PQR)          | Remarks (Quoted rate shall be exclusive of GST) | Tolerance |
|---------|--------------------|--|-----|--------------|-----------------|--|------------------------|---------------------------------|--|---|-----------|
| 1       | RS01               | Radiant Roof Panel (RRP) – Non-NTPC Projects             | KG  | 3,30,000     | 2600            | L01: 40%<br>L02: 20%<br>L03: 20%<br>L04: 20% | Rs. 588 Lakhs          | Yes*                            | PQR to be filled by Vendor as per Annexure A | Rate to be quoted in <b>Rs. per KG</b>          | ± 10%     |
| 2       | RS02               | Terminal Tube bends with fin welding – Non-NTPC Projects | KG  | 90,500       | 3300            | L01: 40%<br>L02: 20%<br>L03: 20%<br>L04: 20% | Rs. 79 Lakhs           | Yes*                            | PQR to be filled by Vendor as per Annexure A | Rate to be quoted in <b>Rs. per KG</b>          | ± 10%     |
|         |                    |  |     | <b>Total</b> | <b>4,20,500</b> |  |                        |                                 |  |   |           |

### Note:

- 1 L02: Second Best Bidder  
L03: Third Best Bidder  
L04: Fourth Best Bidder
- 2 **Rate** Quoted by Vendor shall be **exclusive of GST**. GST will be paid as Extras.
- 3 Vendor to Quote including Paint Rate
- 4\* Kindly note that the Rate Schedule for Extra Joints which are mentioned in Section-I B are only applicable.

Scope for fabrication of Radiant Roof Panel(RRP) - RS01

- 1 IBR approved firm to be loaded.
- 2 The welding shall be done by M/S IBR qualified welders.
- 3 The welding procedure specification (WPS) shall be reviewed and approved by BHEL QC.
- 4 Welding Consumables are to be procured from the BHEL approved vendors.
- 5 Fabrication, Inspection and testing shall be carried out as per applicable quality documents (CQP/SQP/SIP/QCP).
- 6 Form 3B will be vendor's scope. **IBR inspection fees is in BHEL scope and not required to be paid by vendor.**
- 7 Production & common note given in manufacturing GMS has to be followed.
- 8 Collect the complete tubes and plates from BHEL stores with relevant IBR documents.
- 9 Inspect the raw materials details & specification by spectrometer. All IBR inspection formalities should be followed. If any defects noticed in supplied raw material, inform the same to OS immediately.
- 10 Shot-blast the tubes.
- 11 Cut & edge prepare the tubes as per drawing.
- 12 Any butt joint planned & location of butt joint should be done based on engineering clearance. Prior approval must be obtained from engineering for the same.
- 13 Build the tubes to required length by Butt joint (TIG welding preferred).
- 14 Radiographic Test (RT) shall be performed on the Butt joints by BHEL or BHEL approved agency only.
- 15 RT film shall be evaluated by BHEL NDTL.
- 16 Cut & manufacture the attachments as per drawing.
- 17 For the purpose of FOT if raw material is required by Firm then it shall be issued by BHEL and shall be treated as scrap for the purpose of material accounting.
- 18 Bend the tubes as per drawing.
- 19 Carry out Attachment welding as per drawing.
- 20 At Butt joint locations, fin should be ground to suit the butt weld reinforcement. Weld over weld should be avoided.
- 21 Conduct visual inspection on welds. Conduct LPI on welds in the presence of BHEL NDT or BHEL approved agency.
- 22 All NDT testing such as MPI, LPI, sponge test and etc. wherever called for in the drawing/QWI/PO are to be done by Firm.
- 23 Straightening to be ensured.
- 24 Obtain Stress relieving(SR) co-operation from BHEL Trichy or any other firm approved by IBR. **Extra Rate schedule for stress relieving as mentioned in Section-IB is applicable only when the vendor performs the stress relieving process Inhouse/Outsourced to IBR approved facility. If the vendor chooses to bring the components into BHEL Trichy for stress relieving, extras will not be applicable. In such cases, the transportation charges and handling of the material are in vendor's scope.**
- 25 Conduct hydro test for tubes in the presence of BHEL QC.
- 26 Offer for Inspection to QC/BHEL, IBR for final inspection.
- 27 Provide Identification and End caps. **After hydro test, the water must be drained completely. VCI pellets and Plastic End caps should be provided**
- 28 Paint and Dispatch to shipping with relevant IBR and BHEL documents.
- 29 During dispatch from Vendors works to BHEL, bundle wise (DU wise & full quantity) dispatch must be ensured. (Split-up of DU quantity is not acceptable).



Scope for fabrication of Terminal Tube bends with fin welding - RS02

- 1 IBR approved firm to be loaded.
- 2 The welding shall be done by M/S IBR qualified welders.
- 3 The welding procedure specification (WPS) shall be reviewed and approved by BHEL QC.
- 4 Welding Consumables are to be procured from the BHEL approved vendors.
- 5 Fabrication, Inspection and testing shall be carried out as per applicable quality documents (CQP/SQP/SIP/QCP).
- 6 Form 3B will be vendor's scope. **IBR inspection fees is in BHEL scope and not required to be paid by vendor.**
- 7 Production & common note given in manufacturing GMS has to be followed.
- 8 Collect the complete tubes and plates from BHEL stores with relevant documents.  
Inspect the raw materials details & specification by spectrometer. All IBR inspection formalities should be followed. If any defects noticed in supplied raw material, inform the same to OS immediately.
- 9
- 10 Shot-blast the tubes.
- 11 Cut & edge prepare the tubes as per drawing.
- 12 Any butt joint planned & location of butt joint should be done based on engineering clearance. Prior approval must be obtained from engineering for the same.
- 13 Build the tubes to required length by Butt joint (TIG welding preferred).
- 14 Radiographic Test (RT) shall be performed on joints by BHEL or BHEL approved agency only.
- 15 RT film shall be evaluated by BHEL NDTL.
- 16 Cut & manufacture the attachments as per drawing.
- 17 For the purpose of FOT if raw material is required by Firm then it shall be issued by BHEL and shall be treated as scrap for the purpose of material accounting.
- 18 Bend the tubes as per drawing.
- 19 Carry out Attachment welding as per drawing.
- 20 At Butt joint locations, fin should be ground to suit the butt weld reinforcement. Weld over weld should be avoided.
- 21 Conduct visual inspection on welds. Conduct LPI on welds in the presence of BHEL NDT or BHEL approved agency.
- 22 All NDT testing such as MPI, LPI, sponge test and etc. wherever called for in the drawing/QWI/PO are to be done by Firm.
- 23 Straightening to be ensured.
- 24 Obtain Stress relieving(SR) co-operation from BHEL Trichy or any other firm approved by IBR. **Extra Rate schedule for stress relieving as mentioned in Section-IB is applicable only when the vendor performs the stress relieving process Inhouse/Outsourced to IBR approved facility. If the vendor chooses to bring the components into BHEL Trichy for stress relieving, extras will not be applicable. In such cases, the transportation charges and handling of the material are in vendor's scope.**
- 25 Conduct hydro test for tubes in the presence of BHEL QC.
- 26 Offer for Inspection to QC/BHEL & IBR for final inspection.
- 27 Provide Identification and End caps. **After hydro test, the water must be drained completely. VCI pellets and Plastic End caps should be provided**
- 28 Paint and Dispatch to shipping with relevant IBR and BHEL documents.
- 29 During dispatch from Vendors works to BHEL, bundle wise (DU wise & full quantity) dispatch must be ensured. (Split-up of DU quantity is not acceptable).