



BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING MANAGEMENT, NOIDA

Date-30-Mar-24

CORRIGENDUM- 03

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| PROJECTs | : | 2 X 800 MW NTPC LARA TPP STAGE-II |
| PACKAGE | : | COOLING TOWER - Induced Draft Cooling Towers (IDCT) |
| ENQUIRY NO | : | PE/PG/LAR/E-7421/2023 Dated-1-Mar-24 |
| SUBJECT | : | PRE-BID CLARIFICATION |

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|-------------------------|-------------------------------------|--------------------------|-------------------------------------|
| Type of Corrigendum | | | |
| Technical Corrigendum - | <input checked="" type="checkbox"/> | Commercial Corrigendum - | <input checked="" type="checkbox"/> |

Bidders are requested to go through the following -

- Please find **Annexure A to Corrigenda 03 for clarification** by BHEL against additional pre-bid queries raised by prospective bidders. Bidders are requested to comply the same while quoting for this tender enquiry.

All the other terms and conditions of the tender enquiry remain unchanged. All the bidders are requested to quote accordingly.

Yours faithfully,

For and on behalf of BHEL

SUMEET SAHAY
Manager/BOP



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ANNEXURE A TO CORRIGENDA 03

BHEL'S CLARIFICATION TO THE PRE BID QUERIES

| Sr. No. | Document | Clause no. | Page no. | Subject | Query | BHEL Response |
|---------|---------------|-----------------|----------|-----------------------------------|---|---|
| 1 | SCC, Rev. 00 | 25 | 5 of 7 | Construction facilities to vendor | At what rate the construction power will be charged. We request you to provide the per unit cost of construction power. | Construction power rate shall be State Electricity board rate including taxes & duties as applicable. |
| 2 | SCC, Rev. 00 | 26, 26A and 26B | 5 of 7 | Storage | We understand that sr. no. 26 and 26B is applicable for cooling tower bidder and sr. no. 26A is not applicable for cooling tower bidder. Please confirm if our understanding is correct. | SCC cl. 26A is also applicable for cooling Tower bidder |
| 3 | Annexure - IV | 2.0 (1) | 1 of 2 | Construction power | Please provide the unit rate at which the construction power will be charged. This is required to ensure that all bidders consider the same rate and are at par. | Construction power rate shall be State Electricity board rate including taxes & duties as applicable. |
| 4 | NIT | 01 of 10 | 21 | Delivery schedule | The delivery schedule of 22 months & 28 months from LOA for Unit#1 and Unit#2 respectively is on the lower side. We request you to revise the same to 26 months and 32 months for Unit#1 and Unit#2 respectively. By revising the schedule, the gap between mechanical completion and | NIT terms will prevail. Kindly comply the same. |



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| | | | | | trial run / commissioning can be minimized so that we need not face issues during start-up. | |
| 5 | 1 | 5 of 7 | 26A | Storage Infrastructure by Vendor | As per Description given under this clause , storage infrastructure is applicable for Turnkey packages (Fuel Oil Handling and Storage System, Compressed Air System, Air conditioning System, Ventilation system, DM Plant, Condensate Polishing Unit, Pretreatment Plant, Mill Reject System, Effluent Treatment Plant and Sewage Treatment Plant packages) only. IDCT package is not included in the list mentioned here. Hence this is not applicable for IDCT package. | SCC cl. 26A is also applicable for cooling Tower bidder |
| 6 | 1 | 5 of 7 | 25 | Construction power : Construction Power is chargeable as per customer contract which can be provided at single point source post establishment of Construction Power grid by PSWR. | We request BHEL to provide free and interrupted construction power near to cooling tower and confirm. | Construction power rate shall be State Electricity board rate including taxes & duties as applicable. |
| 7 | 1 | 5 of 7 | 25 | Construction water : Construction water is not available within | We request BHEL to provide free and interrupted construction water | in case bidder obtain the statutory clearance / local body clearance then |



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| | | | | project premises. | near to cooling tower and confirm. | borewell will be allowed. Else bidder to arrange construction water on its own. |
| 8 | 5 | | | | We did not find Barricading Procedure applicable for this tender and request BHEL to provide the same. | As per SCC and details will be shared at latter date. |
| 9 | 9 | 1 of 2 | 2.0. | Construction power : Chargeable. | We request BHEL to provide free and uninterrupted construction power near to cooling tower site and confirm the same. | Bidder to follow tender condition for construction power annexure IV. BHEL shall provide single point connection within 100 mtr at 2 location for IDCT #1 , IDCT#2 only. |
| 10 | 10 | 1 of 2 | 2.1. | Construction water : Arrangement of construction water is in bidder's scope in all stages of work | We request BHEL to provide free and uninterrupted construction water near to cooling tower site and confirm the same. | in case bidder obtain the statutory clearance / local body clearance then borewell will be allowed. Else bidder to arrange construction water on its own. |
| 11 | 14 | 1 of 10 | 21 | Delivery schedule : 16 months from date of LOA. | Considering the nature & scope of supply / work etc. involved in the package, we need the minimum delivery schedule of twenty (20) months from the date of LOA. | NIT terms will prevail. Kindly comply the same. |
| 12 | 14 | 1 of 10 | 21 | Civil + E & C : Unit #1 24 months from date of LOA. Unit#2 - 28 months from date of LOA | Considering the nature & scope of work involved etc.included in the package, we need the minimum completion period of a) twenty eight (28) months from the date of LOA for civil + E&C of Unit # 1b) thirty two (32) | NIT terms will prevail. Kindly comply the same. |



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| | | | | | months from the date of LOA for civil + E&C of Unit # 2 | |
| 13 | 14 | 2 of 10 | 28 | Cement & Reinforcement steel required for complete civil works of Cooling Tower are excluded from bidder's scope | We request BHEL to provide the free issue of RMC instead of cement | Bidder to follow tender condition. |
| 14 | 14 | 2 of 10 | 28 | Cement & Reinforcement steel required for complete civil works of Cooling Tower are excluded from bidder's scope | We request BHEL to provide the free issue of RMC/cement & reinforcement steel at proposed cooling tower site. | Bidder to follow tender condition. |
| 15 | Tendernotice_9 | | Annexure-IV IDCT for Lara Project Clause 2.0 Construction Power (Chargeable) | | Construction power (three phase, 415 V/ 440 V) will be provided chargeable at one point near the site at a distance of approx. 500M. Please provide the electricity charges. | Construction power rate shall be State Electricity board rate including taxes & duties as applicable. |
| 16 | Tendernotice_9 | | Annexure-IV IDCT for Lara Project Clause 2.1 Construction water: | | Arrangement of construction water is in bidder's scope in all stages of work. Kindly clarify whether Borewell drilling is allowed at site. In addition, please clarify the reservoir/water source available neat the site. | in case bidder obtain the statutory clearance / local body clearance then borewell will be allowed. Else bidder to arrange construction water on its own. |
| 17 | Notice Inviting Tender | | 27 | 2 of 10 | As cement and reinforcement steel are free issue items, BHEL should permit globalization of the cement and reinforcement steel | Globalization is not allowed. Bidder to follow tender condition. |



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| | | | | | quantities without affecting the sum total of the free issue items. | |
| 18 | Notice Inviting Tender | | 28 (ii) | 3 of 10 | For the last 10% payment against Civil Work, In case PG test / demonstration test of the cooling tower(s) cannot be completed within one year after completion of commissioning of cooling tower(s), for reasons not attributable to the contractor, BHEL shall release payment towards PG Test / demonstration test of the cooling tower(s) against existing performance security that would have been submitted as per NIT clause 35 of page 5 of 10. Please confirm. | Bidder to follow tender condition. |
| 19 | Clause No.1 ANNEXURE IV NIT | Construction Power- Construction power (three phase, 415 V/ 440 V) will be provided chargeable at one point near the site at a distance of approx. 500M. Further distribution shall be arranged by the contractor at his own cost and services. | | We request you to provide uninterrupted supply of construction power within 50m at one point near IDCT's, 50m at one point near fabrication yard, 50m at one point near batching plant, 50m near Labour Colony. Connections should be provided with handing over of work front to BIL. Please specify if fix monthly charges to be paid for construction power. | | Bidder to follow tender condition for construction power annexure IV. BHEL shall provide single point connection within 100 mtr at 2 location for IDCT #1 , IDCT#2 only. |
| 20 | Clause No.2.1 ANNEXURE I NIT | Construction Water- Arrangement of Construction Water is in bidder's scope in all stages of work. | | We request you to provide uninterrupted supply of Water for construction within 50m of IDCT's Site, Fabrication yard, Batching Plant & in Labour Colony (Free of cost). | | in case bidder obtain the statutory clearance / local body clearance then borewell will be allowed. Else bidder to arrange construction water on its own. |



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| 21 | ANNEXURE-I NIT | Development of Bidders temporary staff colony and labour colony having adequate no. of rest rooms along with toilets & fencing etc. | We request BHEL to provide staff living accomodation on free of cost basis. | Bidder to follow tender conditions. |
| 22 | Clause no. 21 NIT | Effective Start Date will be from the date of issuance of LOA. | The Effective start date will be considered from the date mentioned in Notice To Proceed and release of site, free of all encumbrances / hindrance free working site, hindrance free store cum workshop area, hindrance free labour camp area, timely approval of Design and Construction drawings for IDCT and release of advance payment as per approved payment conditions. | Bidder to follow tender conditions. |
| 23 | ANNEXURE-I NIT | Land for labor colony shall be arranged by Contractor at their own cost as per availability outside project area within 5Km, Necessary levelling/dressing of land shall be done by the contractor. All arrangement for electricity and drinking/ service water to be arranged by the vendor within his quoted price. | We request BHEL to provide Land for labour colony on free of cost basis with free water and power. | Bidder to follow tender condition. |
| 24 | ANNEXURE-II NIT | T&P to be deployed by the Contractor:- Payment towards mobilisation and installation for Sr No. A.1, A.8, A.9 and labour colony construction shall be made/ allotted during detailed Civil BBU approval with maximum cumulative 5% of Civil contract value. | Payment towards mobilisation and installation for Sr No. A.1, A.8, A.9 and labour colony construction shall be made/ allotted during detailed Civil BBU approval with maximum cumulative 10% of Civil contract value. | Bidder to follow tender condition. |
| 25 | Clause no. 2.2 ANNEXURE-III NIT | Cement Wastage:- (a) Allowable wastage: One and half percent (+1.5%) of theoretical consumption of cement unless specified otherwise in the technical specification. 2. Actual consumption being Limited to one and half percent (+1.5%) of aforesaid theoretical consumption towards allowable wastage- Free 3. Actual consumption beyond one and half percent (+1.5%) of Sl. No. (1) above. - Penal Rates | Cement Wastage:- (a) Allowable wastage: Three percent (+3%) of theoretical consumption of cement unless specified otherwise in the technical specification. 2. Actual consumption being Limited to three percent (+3%) of aforesaid theoretical consumption towards allowable wastage- Free 3. Actual consumption beyond three percent (+3%) of Sl. No. (1) above. - Penal Rates | Bidder to follow tender condition. |
| 26 | Clause no. 2.4 ANNEXURE-III NIT | Steel Wastage:- (a) Allowable wastage of Reinforcement Steel: Three percent (+3%) of theoretical consumption shall be considered as the allowable | Steel Wastage:- (a) Allowable wastage of Reinforcement Steel: Five percent (+5%) of theoretical consumption | Bidder to follow tender condition. |



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| | | <p>wastage.</p> <p>2. Wastage limited to plus Three percent (+3%) for reinforcement steel of aforesaid theoretical consumption (1) towards allowable wastage.</p> <p>3. Wastage beyond Three percent (+3%) for reinforcement steel of the theoretical consumption as per Sl. No. (1) above.</p> | <p>shall be considered as the allowable wastage.</p> <p>2. Wastage limited to plus Five percent (+5%) for reinforcement steel of aforesaid theoretical consumption (1) towards allowable wastage.</p> <p>3. Wastage beyond Five percent (+5%) for reinforcement steel of the theoretical consumption as per Sl. No. (1) above.</p> | |
| 27 | <p>ANNEXURE-I</p> <p>HEALTH, SAFETY AND ENVIRONMENT PLAN</p> | <p>5. Safety PPEs (Industrial Safety helmet & Industrial Safety Shoes)</p> <p>Industrial Safety Helmet (IS:2925-1984 marked): 1575 nos.</p> <p>Industrial Safety/Electrical Shoes (IS:15298-2002 marked): 1575 nos.</p> <p>Full body Safety Harness (conforming IS:3521): 395 nos.</p> | <p>Please revise the clause: Safety equipment & safety PPE shall be provided as per approved procedure. Quantity mentioned are only for reference and guidance purpose and are not minimum requirement.</p> | <p>Bidder to follow tender condition.</p> |
| 28 | <p>ANNEXURE-9</p> <p>HEALTH, SAFETY AND ENVIRONMENT PLAN</p> | <p>HSE PENALTY</p> | <p>These penalties are very stiff. Please decrease the amount by 50%.</p> | <p>Bidder to follow tender condition.</p> |
| 29 | <p>Clause no. 4.7.1</p> <p>TECHNICAL REQUIREMENTS</p> | <p>For Counterflow Towers sufficient head room (minimum 1.8 M) shall be provided between the water distribution system and drift eliminator for inspection and maintenance.</p> | <p>This clause is not in sync with industry practice based on which several IDCTs have already been built for BHEL and NTPC.</p> <p>a) When the water distribution system i(D/S) s hung from beams, i.e., strapped to beams, then the top of the beam level is available for placing the drift eliminators, in which case the water distribution system and the drift eliminators are separated by only a beam. This arrangement provides easy access to the drift eliminator level for inspection and maintenance. And the water distribution system just below the eliminator packing is also accessible for maintenance. Hence, the 1.8 m gap is not applicable here.</p> | <p>Bidder to follow tender specification.</p> |



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| | | | <p>b) In cases where the drift eliminator I(D/E) level is well above, say 1.8 m above the distribution level, the water distribution pipes are hung from RCC beams supporting the drift eliminator packing. This means that one level of RCC beams supports both the D/S and the D/E packing. However, in this case access for maintenance is possible only for D/E level where RCC beams are available. And access to D/S level becomes difficult as there are no beams at this level because the D/S is hung from the D/E pack level.</p> | |
| 30 | <p>Clause No. 4.7.4 TECHNICAL REQUIREMENT</p> | <p>All distribution pipe shall be adequately supported. The pipe support shall accommodate thermal movement while ensuring the pipe joints do not fail when subjected to pressure surges. The bidder shall submit the details of the proposed method of supporting distribution system.</p> | <p>As bidder to decide the method of supporting the D/S, the requirement of the 1.8 m gap may please be deleted as the supporting methods/design are already standardized in BHEL and NTPC projects</p> | <p>Bidder to follow tender specification.</p> |
| 31 | <p>Clause No. 4.7.9 TECHNICAL REQUIREMENT</p> | <p>The maximum efficiency of the stack for velocity recovery to be considered for calculation of fan power consumption shall be 75%.</p> | <p>The max efficiency of velocity recovery is limited to 75%. A limitation of 70% would have been much better as this is what available literature states. However, even this efficiency is possible only when the venturi angle is between 7.5 and 8 deg. A higher venturi angle will reduce the efficiency for obvious reasons. Hence, it is in BHEL's interest to limit the venturi angle as above.</p> | <p>Bidder to follow tender specification.</p> |
| 32 | | <p>The Specifications are a mix of BHEL and NTPC documents in PDF form.</p> | <p>We find that the properties of the tender documents are not the same in each chapter. For example, it is possible to highlight BHEL specs but no so for NTPC specs. It becomes difficult to search for important points/clauses when highlighting is not possible.</p> | <p>Tender specification is very much clear. Bidder to follow the same.</p> |



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| 33 | Clause no. 10.6 CIVIL TECHNICAL REQUIREMENT | Internal Surface of all water retaining structures shall be plastered in line with requirement mentioned in customer specification. | There is no plastering required as per NTPC specs and no plastering is applied on RCC surfaces of cooling towers. Hence, please confirm that this clause is not applicable to this package. | Bidder to ensure NTPC specification will prevail. |
| 34 | Clause No. 05.17.00.02 TECHNICAL REQUIREMENT | <p>a) The design of all liquid retaining/conveying structures like of cooling tower like C.W. basin, sump, hot water distribution channel/basin, sludge drain and pits shall be designed by working stress method as outlined in Clause 4.5 of IS 3370 (Part 2): 2009.</p> <p>b) The design of all structures other than liquid retaining/conveying structures of cooling tower above CW basin slab such as columns, beams, fins, walkways, slabs, cladding/partition wall, fan stack, precast beams etc. as applicable shall be carried out by limit state method as outlined in Clause 4.4 of IS: 3370 (Part 2): 2009. Further, for limiting the crack width, the stress for the reinforcement steel shall be limited to 130 MPa (on all faces) as per clause 4.4.3.1 of IS: 3370 (Part 2): 2009 using the partial safety</p> | <p>As per this clause the liquid retaining structures are to be designed as per IS 3370, Part 2, which is perfectly alright.</p> <p>However, for limiting the crack width of all other structural members of the IDCT like columns and beams, etc. the stress for the reinforcement steel is to be limited to 130 MPa (on all faces) as per clause 4.4.3.1 of IS: 3370 (Part 2): 2009 using the partial safety.</p> <p>This is nothing but a long way of saying that all other structures, whether or not they retain water, have to be designed as uncracked sections. Please let us know why this is required for the entire IDCT.</p> <p>If conservatism is the main aim of the above clause, then structures other than liquid retaining can be designed for a crack width of 0.1 mm. If these are designed with reinforcement stress limitation of 130 MPa, then the entire IDCT is being treated as a liquid retaining structure, which is not the case in reality. Hence, please review the above clause and confirm that crack width limitation can be applied to other than liquid retaining structures/members of the IDCT. Other than liquid retaining structures are not liquid retaining structures; hence, the request.</p> | Bidder to comply with tender specification requirement. |