

**TENDER SPECIFICATION
BHEL: PSSR: SCT: 1884
FOR**

**Civil, Architectural, Mechanical, Electrical, C&I and
other allied Works of Natural Draught Cooling Towers
(NDCTs) including supply of Materials, Labour, Tools
& Plants, etc. required for Package-1 and Package-2**

At

**5X800 MW Yadadri STPP
VOLUME –I BOOK – I**

TECHNOCOMMERCIAL BID - Consists of Book- I & Book- II

Book- I Consists of

- Notice Inviting Tender
- Volume-IA: Technical Conditions of Contract

Book-II consists of

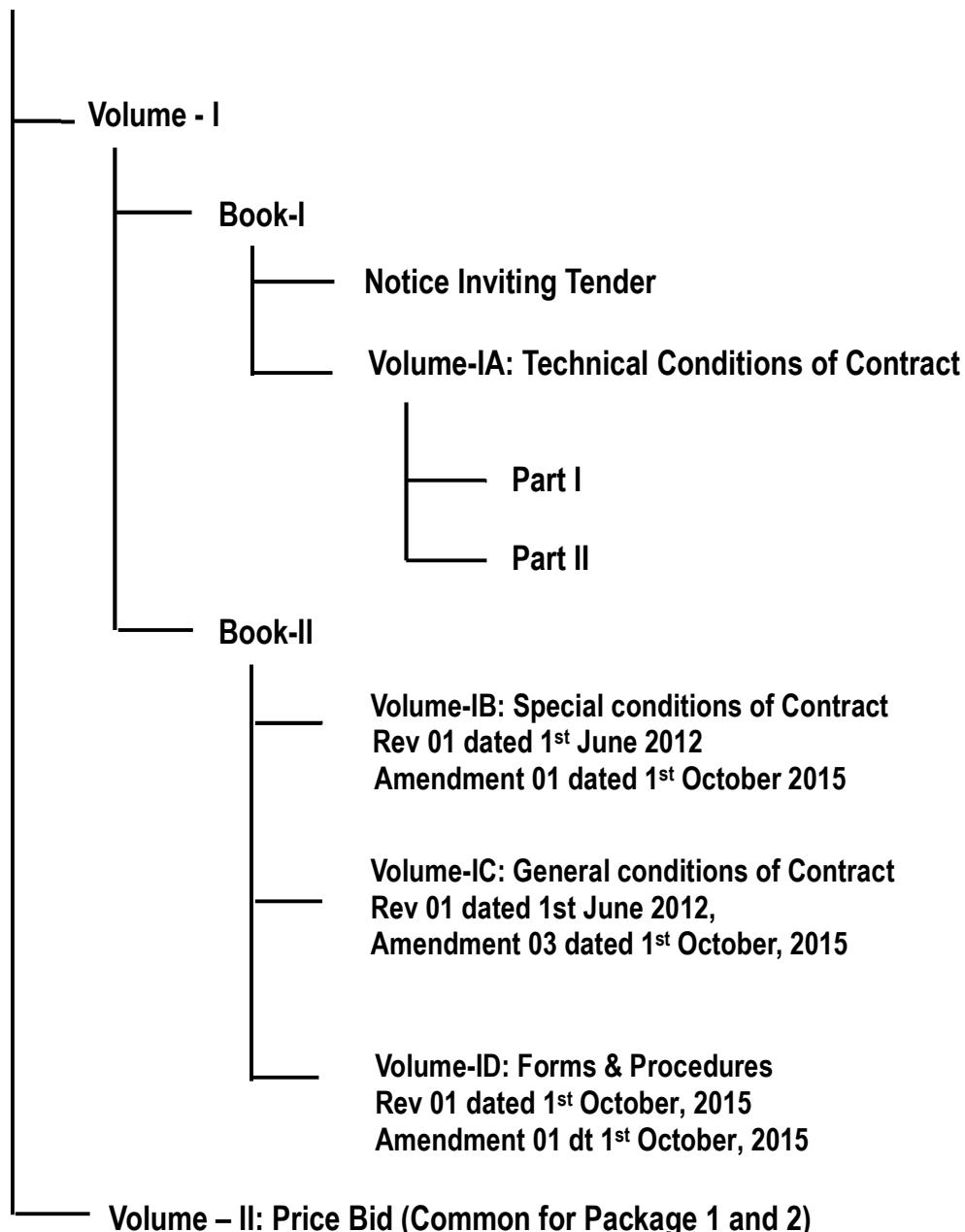
- Volume-IB: Special conditions of Contract,
Rev 01 dated 1st June 2012
Amendment 01 dated 1st October, 2015
- Volume-IC: General conditions of Contract
Rev 01 dated 1st June 2012,
Amendment 03 dated 1st October, 2015
- Volume-ID: Forms & Procedures
Rev 01 dated 1st June 2012
Amendment 01 dt 1st October, 2015



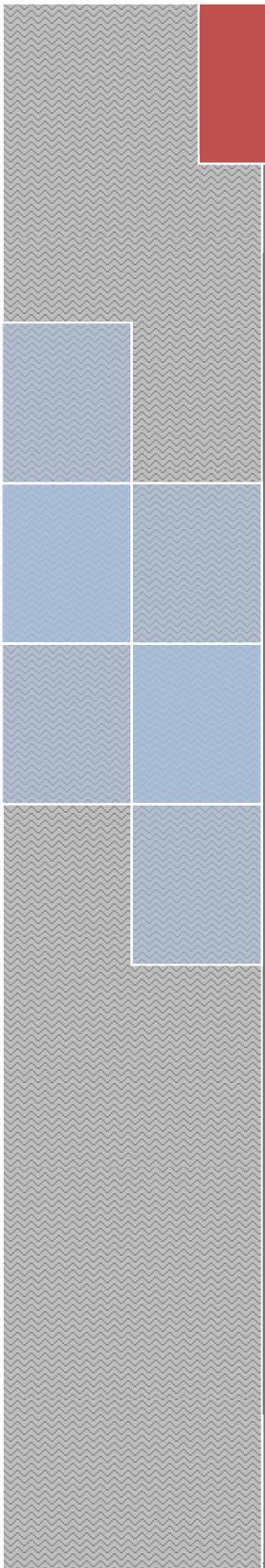
BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector – Southern Region
690, Anna Salai, Nandanam, Chennai – 600 035.

TENDER SPECIFICATION CONSISTS OF

Tender Specification



NOTICE INVITING TENDER



NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



Tender Specification No.: BHEL: PSSR: SCT: 1884

NOTICE INVITING TENDER

Ref: BHEL: PSSR: SCT: 1884

Date: 07-01-2020

NOTICE INVITING TENDER (NIT)

Submission only through E-Procurement Portal

<https://bhel.abcprocure.com>

Note: Bidder may download Tender Document from web sites

To

Dear Sir/Madam

Sub: NOTICE INVITING TENDER

Online Sealed offers in two part bid system are invited from reputed & experienced bidders (meeting PRE QUALIFICATION CRITERIA as mentioned in Annexure-I) **through E-Procurement Portal <https://bhel.abcprocure.com>** only, for the subject job by the undersigned on the behalf of BHARAT HEAVY ELECTRICALS LIMITED as per the tender document. Following points relevant to the tender may please be noted and complied with.

1.0 Salient Features of NIT

Sl. No	ISSUE	DESCRIPTION	
i)	TENDER NUMBER	BHEL: PSSR: SCT: 1884	
ii)	Broad Scope of job	Civil, Architectural, Mechanical, Electrical, C&I and other allied Works of Natural Draught Cooling Towers (NDCTs) including supply of Materials, Labour, Tools & Plants, etc. required for Package-1 and Package-2 of 5X800 MW Yadadri STPP	
iii)	DETAILS OF TENDER DOCUMENT		
A	Volume-IA	Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc	Applicable
B	Volume-IB	Special conditions of Contract, Rev 01 dated 1st June 2012, Amendment 01 dated October 01, 2015	Applicable
C	Volume-IC	General conditions of Contract Rev 01 dated 1st June 2012, Amendment 03 dated October 01, 2015	Applicable
D	Volume-ID	Forms & Procedures Rev 01 dated 1st June 2012 Amendment 01 dated October 01, 2015	Applicable

Tender Specification No.: BHEL: PSSR: SCT: 1884

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E	Volume-II	Price Schedule (Absolute value).	Applicable
iv)	Issue of Tender Documents	<p>1. This is an E-tender floated online through our E-Procurement Portal https://bhel.abcprocure.com</p> <p>2. Sale Start: 08.01.2020 Close: Tender documents for bidder's reference can be downloaded from this website till due date of submission</p> <p>3. From: BHEL website (www.bhel.com -> Tender Notifications).</p>	Applicable
v)	Due Date & Time of Offer Submission	<p>Date: 22.01.2020, Time :15.00 Hrs The bidder should submit their offer online in e-Procurement portal at https://bhel.abcprocure.com</p> <p><u>Bidders are requested to upload their offer well in advance in order to avoid last minute congestion at this website.</u></p> <p>Hard copy bid or bids through E-mail / fax shall not be accepted.</p>	Applicable
vi)	Opening of Tender	<p>Date: 22.01.2020, Time :15.30 Hrs. Notes:</p> <p>(1) In case the due date of opening of tender becomes a non-working day, tenders shall be opened on next working day at the same time.</p> <p>(2) Bidder may record their presence online, during tender opening. However, this being an e-tender it shall be opened online.</p>	Applicable
vii)	EMD Amount	<p>Rs. 2,88,70,000/- (Rupees Two Crore Eighty-Eight Lakh Seventy Thousand only).</p> <ul style="list-style-type: none"> - Refer Vol-1A Part-II Chapter-1 of Technical Conditions of Contract (Volume-I, Book-I) for mode of payment of EMD. - <u>Exemption of EMD for MSEs is not applicable for this tender.</u> 	Applicable
viii)	Cost of Tender	<p>Rs. 2,000/- (Rupees Two Thousand Only)</p> <ul style="list-style-type: none"> - It is to be noted that proof of remittance of Cost of tender shall be made available at BHEL PSSR Office prior to tender opening. - <u>Exemption of Cost of Tender for MSEs is not applicable for this tender.</u> 	Applicable

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ix)	Last Date For Seeking Clarification	Bidders may submit their queries in https://bhel.abcprocure.com at least 7 days before the due date of offer submission or two days before the scheduled date of pre-bid meeting whichever is earlier along with soft version also, addressing to undersigned & to others as per contact address given above.	Applicable
x)	Schedule of Pre Bid Discussion (PBD)	Date: 17.01.2020 Time 11.00AM at BHEL:PSSR:Chennai-35	Applicable
xi)	Integrity Pact & Details of Independent External Monitor (IEM)	<p>a. Integrity Pact (IP) is a tool to ensure that activities and transactions between the company and its Bidders / Contractors are handled in a fair, transparent and corruption free manner. A panel of Independent External Monitors (IEMs) have been appointed to oversee implementation of IP in BHEL. The Presigned copy of IP as given in SI No 13 of Vol-1A Part-II Chapter 1 or format as per Volume 1D Formats (refer Volume I Book II) (Pre-signed copy, if provided shall be applicable) of this tender is to be submitted (duly signed and stamped by the authorized signatory who signs in the offer) along with Techno Commercial Bid. Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this pact would be a preliminary qualification. Details of IEM for this tender is furnished below:</p> <p>1) Shri Arun Chandra Verma, IPS (Retd.) Flat No. C -1204, C Tower, Ampal Platinum, Complex, Sector 119, Noida (U.P.) acverma1@gmail.com</p> <p>2) Shri Virendra Bahadur Singh, IPS (Retd.) H. No. B-5/64, Vineet Khand, Gomti Nagar, Lucknow – 226010 vbsinghips@gmail.com</p> <p>b. Please refer section- 8 of the IP (refer the format given at Volume 1D Formats of this tender) for Role and Responsibilities of IEMs. In case of any complaint</p>	Applicable

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		<p>arising out of the tendering process, the matter may be referred to the IEM mentioned in the tender.</p> <p>Note: No routine correspondence shall be addressed to the IEM (Phone / Post / E mail) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification / issued shall be posted in https://bhel.abcprocure.com. Any other queries may be addressed directly to the tender issuing (Procurement) department as mentioned below:</p> <p>For all clarifications /issues related to the tender, please contact:</p> <ol style="list-style-type: none"> 1. Mr. Anil Kumar, DGM / SCT BHEL- PSSR 690 Anna Salai, Nandanam, Chennai-35 044 - 28286759 anil.kr@bhel.in 2. Mr.Sandipan Biswas, AGM / SCT & Purchase BHEL- PSSR 690 Anna Salai, Nandanam, Chennai-35 044 - 28286757 bsandipan@bhel.in 	
xii	Latest updates	<p>Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com → Tender Notifications) & portal https://bhel.abcprocure.com. These will not be published in the newspapers. Bidders to keep themselves updated with all such information. This also form part of tender hence the same shall be enclosed with their offer.</p>	

2.0 The offer shall be submitted as per the instructions of tender document and as detailed in this NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences shall be submitted by them, **duly signed & stamped on each page, as part of offer. Rates / Price including discounts / rebates, if any,**

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mentioned anywhere / in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.

- 3.0 Cost of tender shall be remitted through, Electronic Fund Transfer credited in BHEL account or Banker's cheque or Pay order or Demand draft, in favour of BHEL.
- 4.0 Unless specifically stated otherwise, bidder shall deposit **Earnest Money Deposit (EMD) as mentioned in Volume IA, Part-II, Chapter-1** of Technical Conditions of Contract (Volume-I Book-I). Please note that 'One Time EMD' shall not be considered. It is to be noted that proof of remittance for EMD shall be made available at BHEL PSSR Office prior to tender opening. For mode of payment of EMD, bidder shall refer Vol-1A Part-II Chapter-1 of Technical Conditions of Contract (Volume-I Book-I).
- 5.0 **Procedure for Submission of Tenders:** This is an E-tender floated online through our E-Procurement portal <https://bhel.abcprocure.com> . The bidder should respond by submitting their offer online only in our e-Procurement portal at <https://bhel.abcprocure.com> . Hard copy bid or bids through email/ fax shall not be accepted.

I. Pre-requisite for Offer Submission: -

Digital Certificate: To access an e-Tender, you need to have a Class-II/III Digital Signature Certificate (DSC) for Signing & Encryption (Required both digital signature certificate: Signing & Encryption) of bids issued by any of the valid Certifying Authorities (approved by Controller of Certifying Authorities) in India. Valid Digital Signature Certificate (DSC) must be installed in a computer system from where you want to access the website.

MINIMUM REQUIREMENT: (Mandatory)

- Computer with good Internet Connection.
- Operating System should be Windows Vista / Windows 7 and above.
- Web Browsers: Internet Explorer 9.0 (32-bit Browser only) & above

At first time login, to verify and approve your login profile & DSC, you are requested to contact e-Procurement Service Provider.

Also please Refer "Bidder Manual for BHEL Bidders" and "Minimum System Requirements and Settings Document for BHEL user & Bidders" available at <https://bhel.abcprocure.com> .

II. Digital Signing of e-Tender

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Tenders shall be uploaded with all relevant documents in PDF/zip format. The relevant tender documents should be uploaded by an authorized person having Class-II/III Digital Signature Certificate (DSC) for Signing & Encryption.

i) **The Requirement:**

- a. A PC with Internet connectivity &
- b. DSC (Digital Signature Certificate) Class-II/III Digital Signature Certificate (DSC) for Signing & Encryption)

Vendors are also requested to go through bidder manual available on <https://bhel.abcprocure.com>

III. E-procurement service Provider:-

Address:

e-Procurement Technologies Limited (abcProcure),
Head Office: B-704/705, Wall Street - II, Opp. Orient Club,
Nr. Gujarat College, Ellis Bridge, Ahmedabad - 380 006, Gujarat (India)

Timing:

Indian Standard Time (+5:30 GMT): 10:00 AM - 07:00 PM (Monday to Friday)

Indian Standard Time (+5:30 GMT): 10:00 AM - 04:00 PM (Saturday)

The contact details of the service provider are given below:

Contact: +91-79-68136819/809/862/867/823/872/842

E-Mail: BHEL.Support@abcProcure.com

Further contact details can be obtained by visiting the following webpage:

<https://bhel.abcprocure.com/EPROC/contactus>

IV. Documents Comprising the e-Tender

The tender shall be submitted online – only except tender fee & EMD (in physical form) as mentioned below:

i) **Technical Tender (UN priced Tender)**

Bidders shall furnish the following information along with technical tender (preferably in pdf format):

- i). Tender Cost and Earnest Money Deposit (EMD) furnished in accordance with **NIT Clause 3.0 & 4.0**.
- ii). All Technical details (eg. Eligibility Criteria requested, Technical Conditions of Contract) should be attached in e-tendering module (As

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detailed in Clause 6.0 below), failing which the tender stands invalid & may be REJECTED.

ii) Price Bid:

- a. Prices are to be quoted as per the Price Bid Form available on e-tender portal.
- b. The price should be quoted for the accounting unit indicated in the e-tender document.
- c. The item description, Quantity and Unit of measurement, as mentioned in Price bid uploaded by BHEL and subsequent revisions issued by BHEL, shall be binding on the bidder.

Note:

- i). It is the responsibility of tenderer to go through the Tender document to ensure furnishing all required documents in addition to above, if any. Any deviation would result in REJECTION of tender and would not be considered at a later stage at any cost by BHEL.
- ii). A person signing (manually or digitally) the tender form or any documents forming part of the contract on behalf of another shall be deemed to warrantee that he has authority to bind such other persons and if, on enquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies, cancel the contract and hold the signatory liable for all cost and damages.
- iii). A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.
- iv). In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, same shall not be considered.

V. DO NOT'S

Bidders are requested NOT to submit the hard copy of the Bid. In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, the same shall not be considered.

Vendors are also requested to go through bidder manual available on <https://bhel.abcprocure.com>

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6.0 DOCUMENTS TO BE UPLOADED & MODALITY OF UPLOADING in E-PROCUREMENT PORTAL <https://bhel.abcprocure.com> SHALL BE AS DETAILED BELOW

SI No	Description	Remarks
	Techno-Commercial Bid CONTAINING THE FOLLOWING:-	
i.	Covering letter / Offer forwarding letter of Tenderer.	Refer "Bidder Manual for BHEL Bidders" available at https://bhel.abcprocure.com
ii.	<p>Duly filled-in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. In case of any deviation, the same should be submitted separately for technical & commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be attached along with document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained. 2. BHEL reserves the right to accept / reject the deviations without assigning any reasons, and BHEL decision is final and binding. <ul style="list-style-type: none"> (i) In case of acceptance of the deviations, appropriate loading shall be done by BHEL (ii) In case of unacceptable deviations, BHEL reserves the right to reject the tender. 	Refer "Bidder Manual for BHEL Bidders" available at https://bhel.abcprocure.com
iii.	<p>Supporting documents / annexure / schedules / drawing etc as required in line with Pre-Qualification criteria. (Technical & Financial)</p> <p>As detailed in Clause No. 25 of NIT, It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization, contact phone no, FAX no, E-mail ID, etc.</p>	Refer "Bidder Manual for BHEL Bidders" available at https://bhel.abcprocure.com

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iv.	All Amendments / Correspondences / Corrigenda / Clarifications / Changes / Errata etc pertinent to this NIT.	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com
v.	Integrity Pact Agreement (Duly signed by the authorized signatory)	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com
vi.	Duly filled-in annexures, formats etc as required under this Tender Specification / NIT	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com
vii.	Notice inviting Tender (NIT)	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com
viii.	Volume – I A : Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com
ix.	Volume – I B : Special Conditions of Contract (SCC)	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com
x.	Volume – I C : General Conditions of Contract (GCC)	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com
xi.	Volume – I D : Forms & Procedures	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com
xii.	Volume – II (UNPRICED – without disclosing rates/price, but mentioning only ‘QUOTED’ or ‘UNQUOTED’ against each item	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com
xiii.	Any other details preferred by bidder with proper indexing.	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com

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Caution to Bidders: -

The duly signed & stamped copies of Volume – 1 Book 1 & Volume 1 Book 2 are to be attached as a part of your offer, in their respective sections. Also for any further queries, please refer “Bidder Manual for BHEL Bidders” available at <https://bhel.abcprocure.com>

	PRICE BID consisting of the following shall be attached as mentioned below	
i	Price/ Total Amount corresponding to the total works as specified in “Part C: Bill of Quantities” available in “Volume II – PRICE BID (latest Revision) shall be quoted in the Price Bid Form available in e-Procurement portal. Bidders to note that documents uploaded under the Price Bid Form shall be considered for commercial evaluation of offer.	Refer “Bidder Manual for BHEL Bidders” available at https://bhel.abcprocure.com

SPECIAL NOTE:

- i. All documents / annexures submitted with the **offer shall be properly attached / entered / uploaded in the respective sections**. BHEL shall not be responsible for any missing documents.
- ii. **Your offer & documents submitted along with offer shall be signed & stamped in each page by your authorized representative.**

7.0 Deviation with respect to tender clauses and additional clauses / suggestions / in Techno-commercial bid / Price bid shall NOT be considered by BHEL. Bidders are requested to positively comply with the same.

8.0 BHEL reserves the right to accept or reject any or all Offers without assigning any reasons thereof. BHEL also reserves the right to cancel the Tender wholly or partly without assigning any reason thereof. Also BHEL shall not entertain any correspondence from bidders in this matter (except for the refund of EMD).

9.0 ASSESSMENT OF CAPACITY OF BIDDERS:

Bidder's capacity for executing the job under tender shall be assessed 'LOAD' wise and 'PERFORMANCE' wise as per the following:

I. LOAD: Load takes into consideration ALL the contracts of the Bidder under execution with BHEL Regions, irrespective of whether they are similar to the tendered scope or not. The cut off month for reckoning 'Load' shall be the third month preceding the month corresponding to the 'latest date of bid submission', in the following manner –

(Note: For example, if latest bid submission is in Jan 2017, then the 'load'

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shall be calculated up to and inclusive of Oct 2016)

Total number of Packages in hand = Load (P)

Where 'P' is the sum of all unit wise identified packages (refer table-1) under execution with BHEL Regions as of the cut off month defined above, including packages yet to be commenced, excepting packages which are on HOLD due to reasons not attributable to Bidder.

II. PERFORMANCE: Here 'Monthly Performance' of the bidder for all the packages (under execution/ executed during the 'Period of Assessment' in all Power Sector Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced shall be taken into consideration. The 'Period of Assessment' shall be 6 months preceding and including the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the third month preceding the month corresponding to 'latest date of bid submission', in the following manner:

(Note): For example, if 'latest date of bid submission' is in Jan 2017, then the 'performance' shall be assessed for a 'six months' period up to and inclusive of Oct 2016 (i.e. from May 2016 to Oct 2016), for all the unit wise identified packages (refer Table I)

- i). Calculation of Overall 'PerformanceRating' for 'Similar Package / Packages' for the tendered scope under execution at Power Sector Regions for the 'Period of Assessment'

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for all the similar Package / packages', divided by the total number of Package months for which evaluation should have been done, as per procedure below:

- a) $P_1, P_2, P_3, P_4, P_5, \dots, P_N$ etc. be the packages (under execution / executed during the 'Period of Assessment' in all Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions = P_T (i.e. $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$)
- b) Number of Months ' T_1 ' for which 'Monthly Performance Evaluation' as per relevant formats, should have been done in the 'Period of Assessment' for the corresponding similar package P_1 . Similarly T_2 for package P_2 , T_3 for package P_3 , etc. for the tendered scope. Now calculate cumulative total months ' T_T ' for total similar Packages ' P_T ' for all Regions (i.e. $T_T = T_1 + T_2 + T_3 + T_4 + \dots + T_N$)

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c) Sum 'S₁' of 'Monthly Performance Evaluation' Scores (S₁₋₁, S₁₋₂, S₁₋₃, S₁₋₄, S₁₋₅.... S_{1-T₁}) for similar package P₁, for the 'period of assessment' 'T₁' (i.e. S₁= S₁₋₁+ S₁₋₂+ S₁₋₃+ S₁₋₄+ S₁₋₅+...S_{1-T₁}). Similarly, S₂ for package P₂ for period T₂, S₃ for package P₃ for period T₃ etc. for the tendered scope for all Regions. Now calculate cumulative sum 'S_T' of 'Monthly Performance Evaluation' Scores for total similar Packages 'P_T' for all Regions (i.e. 'S_T' = S₁+ S₂+ S₃+ S₄+ S₅+.... S_N.)

d) **Overall Performance Rating 'R_{BHEL}' for the Similar Package / Packages** (under execution / executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL

Aggregate of Performance scores for all similar packages in all the Regions

= -----

Aggregate of months for each of the similar packages for which performance should have been evaluated in all the Regions.

S_T

= -----

T_T

e) **Bidders to note that the risk of non-evaluation or non-availability of the 'Monthly Performance Evaluation' reports as per relevant formats is to be borne by the Bidder.**

f) **Table showing methodology for calculating 'a', 'b' and 'c' above**

Sl no	Item Description	Details for all Regions								Total
		(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	
1	Similar Packages for all Regions → (under execution/ executed during period of assessment)	P ₁	P ₂	P ₃	P ₄	P ₅	...	P _N		Total No of similar packages for all Regions = P _T ie Sum (Σ) of columns (iii) to (ix)

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Sl no	Item Description	Details for all Regions								Total
		(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)	
2	Number of Months for which 'Monthly Performance Evaluation' as per relevant formats should have been done in the 'period of assessment for corresponding similar Package (as in row 1)	T ₁	T ₂	T ₃	T ₄	T ₅	...	T _N	Sum (Σ) of columns (iii) to (ix) = T _T	
3	Monthly performance scores for the corresponding period (as in Row 2)	S ₁₋₁ , S ₁₋₂ , S ₁₋₃ , S ₁₋₄ , ... S _{1-T1}	S ₂₋₁ , S ₂₋₂ , S ₂₋₃ , S ₂₋₄ , ... S _{2-T2}	S ₃₋₁ , S ₃₋₂ , S ₃₋₃ , S ₃₋₄ , ... S _{3-T3}	S ₄₋₁ , S ₄₋₂ , S ₄₋₃ , S ₄₋₄ , ... S _{4-T4}	S ₅₋₁ , S ₅₋₂ , S ₅₋₃ , S ₅₋₄ , ... S _{5-T5}	...	S _{N-1} , S _{N-2} , S _{N-3} , S _{N-4} , ... S _{N-TN}	-----	
4	Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row-3)	S ₁	S ₂	S ₃	S ₄	S ₅	...	S _N	Sum (Σ) of columns (iii) to (ix) = S _T	

ii.) Calculation of Overall 'Performance Rating' (R_{BHEL}) in case at least six evaluation scores for 'similar Package / Packages' for the tendered scope ARE NOT AVAILABLE during the 'Period of Assessment'.

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for ALL the packages, divided by the total number of Package months for which evaluation should have been done. 'R_{BHEL}' shall be calculated subject to availability of 'performance scores' for at least six 'package months' in the order of precedence below:

- 'Period of Assessment' i.e. six months preceding and including the cut-off month
- 12 months preceding and including the cut-off month
- 24 months preceding and including the cut-off month
- 36 months preceding and including the cut-off month

In case, 'R_{BHEL}' cannot be calculated as above, then Bidder shall be treated as 'NEW VENDOR'. Further eligibility and qualification of this

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bidder shall be as per definition of 'NEW VENDOR' described in 'Explanatory Notes'.

iii) Factor "L" assigned based on Overall Performance Rating (R_{BHEL}) at Power Sector Regions.:

Sl. No.	Overall Performance Rating (R_{BHEL})	Corresponding value of 'L'
1	=60	NA
2	> 60 and \leq 65	0.4
3	> 65 and \leq 70	0.35
4	> 70 and \leq 75	0.25
5	> 75 and $<$ 80	0.2
6	\geq 80	NA

III. Assessment of Capacity of Bidder:

'Assessment of Capacity of Bidder' is based on the Maximum number of packages for which a vendor is eligible, considering the performance scores of similar packages, as below:

Max number of packages $P_{Max} = (R_{BHEL} - 60)$ divided by corresponding value of 'L' i.e. $(R_{BHEL} - 60)/L$

Note:

- i. In case the value of P_{Max} results in a fraction, the value of P_{Max} is to be rounded off to next whole number
- ii. For $R_{BHEL} = 60$, $P_{Max} = '1'$
- iii. For $R_{BHEL} \geq 80$, there will be no upper limit on P_{Max}

The Bidder shall be considered 'Qualified' as per 'Assessment of Capacity of Bidder' for the subject Tender if $P \leq P_{Max}$

(Where P is calculated as per clause 'I' above.)

IV. Explanatory note:

- i). Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or C&I etc. at the individual level irrespective of rating of Plant and irrespective of whether the subject tender is a single package or as part of combined / composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, C&I, Civil, Structure etc. is considered individual level of package. For example, in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e. the 'identified packages as per Table-1 below), the 'PERFORMANCE' part against sl.no. II above, needs to

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be evaluated considering all the identified packages (i.e. Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above.

ii). Identified Packages (Unit wise)

Table-1

Civil	Electrical & CI	Mechanical
i). Enabling works	i). Electrical	i). Boiler & Aux (All types including CW Piping if applicable)
ii). Pile and Pile Caps	ii). CI	ii). Power Cycle Piping / Critical Piping
iii). Civil Works including foundations	iii). Others (Elec & CI)	iii). ESP
iv). Structural Steel Fabrication & Erection		iv). LP Piping
v). Chimney		v). Steam Turbine Generator set & Aux
vi). Cooling Tower		vi). Gas Turbine Generator set & Aux
vii). Others (Civil)		vii). Hydro Turbine Generator set & Aux
		viii). Turbo Blower (including Steam Turbine)
		ix). Material Management
		x). Others (Mechanical)

iii). Bidders who have not been evaluated for at least six package months in the last 36 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions, shall be considered "NEW VENDOR".

A 'NEW VENDOR' shall be considered qualified subject to satisfying all other tender conditions

A 'NEW VENDOR' if awarded a job (of package / packages identified under this clause) shall be tagged as "FIRST TIMER" on the date of first LOI from BHEL.

The "FIRST TIMER" tag shall remain till completion of all the contracts against which vendor has been tagged as First Timer or availability of 6 evaluation scores within last 36 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions.

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A Bidder shall not be eligible for the next job as long as the Bidder is tagged as "FIRST TIMER" excepting for the Tenders which have been opened on or before the date of the bidder being tagged as 'FIRST TIMER'.

After removal of 'FIRST TIMER' tag, the Bidder shall be considered 'QUALIFIED' for the future tenders subject to satisfying all other tender conditions including 'Assessment of Capacity of Bidders'.

- iv). Consequent upon applying the criteria of 'Assessment of Capacity of Bidders' detailed above on all the bidders qualified against Technical and Financial Qualification criteria, if the number of qualified bidders reduces to less than four, then for further processing of the Tender, BHEL at its discretion reserves the right to also consider the bidders who are "not qualified" as per criteria of 'Assessment of Capacity of Bidders' and for this, procedure described in following three options shall be followed:
 - a) All the bidders having Overall Performance Rating ('R_{BHEL}') ≥ 60 shall be considered qualified against criteria of 'Assessment of Capacity of Bidders'.
 - b) If even after using option "a", the number of qualified bidders remains less than four, then in addition to bidders considered as per option "a", "First timer" bidders having average of available performance scores ≥ 60 upto and including the Cut Off month shall also be considered qualified against criteria of 'Assessment of Capacity of Bidders'.
 - c) If even after using option "a" and "b", the number of qualified bidders remains less than four, then in addition to bidders considered as per option "a" and "b", "First timer" bidders for whom no performance score is available in the system upto and including the Cut Off month, shall also be considered qualified against criteria of 'Assessment of Capacity of Bidders'.

Note:- In case, the number of bidders qualified against Technical and Financial Qualification criteria itself is less than four, then all bidders (a)- having Overall Performance Rating ('R_{BHEL}') ≥ 60 , (b)- First timer" bidders having average of available performance scores ≥ 60 upto and including the Cut Off month, (c)- "First timer" bidders for whom no performance score is available in the system upto and including the Cut Off month, shall be considered qualified against criteria of 'Assessment of Capacity of Bidders' for further processing of tender.

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- v). 'Under execution' shall mean works in progress as per the following:
 - a. Up to execution of 90% of anticipated Contract Value in case of Civil, MM, Structural and Turbo Blower Packages
 - b. Up to Steam Blowing in case of Boiler/ESP/Piping Packages
 - c. Up to Synchronization in all Balance Packages

Note: BHEL at its discretion can extend (or reduce in exceptional cases in line with Contract conditions) the period defined against (a), (b) and (c) above, depending upon the balance scope of work to be completed.

- vi). Contractor shall provide the latest contact details i.e. mail-ID and Correspondence Address to SCT Department, so that same can be entered in the Contractor Performance Evaluation System, and in case of any change/discrepancy same shall be informed immediately. Login Details for viewing scores in Contractor Performance Evaluation System shall be provided to the Contractor by SCT Department.
- vii). Performance Evaluation for Activity Month shall be completed in Evaluation Month (i.e. month next to Activity Month) or in rare cases in Post Evaluation Month (i.e. month next to Evaluation Month) after approval from Competent Authority. In case scores are not acceptable, Contractor can submit Review Request to GM Site / GM Project latest by 25th of Evaluation Month or 3 days after approval of score, whichever is later. However, acceptance / rejection of 'Review Request' solely depends on the discretion of GM Site / GM Project. After acceptance of Review Request, evaluation score shall be reviewed at site and the score after completion of review process shall be acceptable and binding on the contractor.

viii. Project on Hold due to reasons not attributable to bidder -

- a. **Short hold:** Evaluation shall not be applicable for this period; however, loading will be considered.
- b. **Long hold:** Short hold for continuous six months and beyond or hold on account of Force Majeure shall be considered as Long Hold. Evaluation as well as Loading shall not be considered for this period.

10.0 Performance evaluation in Clause 9 above is applicable to Prime bidder and consortium partner (or Technical tie up partner) for their respective scope of work.

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11.0 Since the job shall be executed at site, bidders must visit site/ work area and study the job content, facilities available, availability of materials, prevailing site conditions including law & order situation, applicable wage structure, wage rules, etc before quoting for this tender. They may also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions.

12.0 For any clarification on the tender document, the bidder may seek the same in clarification provision available in procurement portal <https://bhel.abcprocure.com> or writing or through e-mail, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

13.0 BHEL may decide holding pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.

14.0 In the event of any conflict between requirement of any clause of this specification / documents / drawings / data sheets etc or requirements of different codes / standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages / other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting / submission of offer, else BHEL's interpretation shall prevail.

15.0 Unless specifically mentioned otherwise, bidder's quoted price shall deem to be in compliance with tender including PBD.

16.0 Bidders shall submit Integrity Pact Agreement, (Duly signed by authorized signatory who signs in the offer), along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The Integrity pact is to be submitted by Prime Bidder & Consortium / Technical Tie up partner jointly in case Consortium bidding is permitted, otherwise by the sole bidder. The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.**

17.0 The Bidder has to satisfy the Pre-Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the pre-qualification criteria specified in this NIT as per Annexure-1(as applicable)

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past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right NOT to consider offers of parties under HOLD.

- 18.0 In case BHEL decides on a 'Public Opening', the date & time of opening of the sealed PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorized representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful / Disqualified bidders under intimation to the respective bidders.
- 19.0 Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.
- 20.0 BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on <http://www.bhel.com>) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers / contractors (as available on <http://www.bhel.com>).

The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. **The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.**

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers / contractors (as available on www.bhel.com).

- 21.0 On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.

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22.0 In case the bidder is an “Indian Agent of Foreign Principals”, ‘Agency agreement has to be submitted along with Bid, detailing the role of the agent along with the terms of payment for agency commission in INR, along with supporting documents.

23.0 The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.

24.0 Void

25.0 The bidder shall submit documents in support of possession of ‘Qualifying Requirements’ duly self-certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents / proofs, these shall be submitted immediately.

26.0 The bidder may have to produce original document for verification if so decided by BHEL.

27.0 The offers of the bidders who are under suspension as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site “www.bhel.com → tender notification”.

28.0 It may be noted that guidelines / rules in respect of ‘Suspension of Business dealings’ available on BHEL web site “www.bhel.com → **Supplier Registration**”, ‘Vendor evaluation format’, Quality, Safety & HSE guidelines’, etc may undergo change from time to time and the latest one shall be followed.

29.0 The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

30.0 Bid should be free from correction, overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection. All overwriting/cutting, etc., will be numbered by bid opening officials and announced during bid opening.

31.0 Integrity commitment, performance of the contract and punitive action thereof:

31.1 Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the tender process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.

31.2 Commitment by Bidder / Supplier / Contractor:

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31.2.1 The bidder / supplier / contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.

31.2.2 The bidder / supplier / contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.

31.2.3 The bidder / supplier / contractor will perform / execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business / money / reputation, to BHEL.

If any bidder / supplier / contractor during pre-tendering / tendering / post tendering / award / execution / post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder / supplier / contractor as per extant guidelines of the company available on www.bhel.com and / or under applicable legal provisions.

32.0 “For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/ PO/ WO against this NIT. In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable.”

33.0 Mode of award of work

33.1 Scope The entire scope of indented work is being split into two unequal packages (Package-1 consisting of 3 Nos. NDCT's and Package-2 consisting of 2 Nos. NDCT's) and will be awarded to two agencies. BOQ/Rate Schedule enclosed in this tender is for one unit i.e. 1 No. NDCT only and bidder has to quote for one unit i.e. 1 No. NDCT only.

33.2 The successful bidder against this quote i.e. L1 bidder, will be awarded the contract for package-1 consisting of 3 Nos. NDCTs (of Unit 1, 3 and 5)

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- 33.3 The contract value for each package will be arrived based on no. of NDCT's in respective packages.
- 33.4 BHEL at its discretion, may award the contract for package-2 consisting of 2 Nos. NDCTs (of Unit 2 and 4) on the same terms and conditions of tender to the next lowest bidder in the order of competitiveness (i.e. L2, L3 and so on till H1 in that order) provided they match their quoted price for 1 No. NDCT with the price of 1 No. NDCT in awarded package-1. In case, L2, L3 and so on till H1 does not match with the awarded price of 1 No. NDCT of Package - 1, then L1 bidder may be awarded the package-2 also. BHEL reserves the right to not offer package-2 in above manner at its sole discretion without assigning any reason to bidders.
- 33.5 Each package will be treated as a separate contract.

34.0 Order of Precedence:

In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:

- a. Amendments / Clarifications / Corrigenda / Errata etc. issued in respect of the tender documents by BHEL
- b. Notice Inviting Tender (NIT)
- c. Price Bid
- d. Technical Conditions of Contract (TCC)—Volume-1A
- e. Special Conditions of Contract (SCC) —Volume-1B
Rev. 01 Dt. 01 Jun 2012; Amendment: 01 Dt. 1st October 2015
- f. General Conditions of Contract (GCC) —Volume-1C
Rev. 01 Dt. 01 Jun 2012; Amendment: 03 Dt. 1st October 2015
- g. Forms and Procedures —Volume-1D
Rev. 01 Dt. 01 Jun 2012; Amendment: 01 Dt. 1st October 2015

For and on behalf of BHARAT HEAVY ELECTRICALS LTD

Additional General Manager / SCT & Purchase

Enclosure

1. Annexure-1: Pre Qualifying criteria.
2. Annexure-2: Check List.
3. Annexure-3: Technical Pre Qualifying Criteria
4. Annexure-4: Annexure to Pre-Qualifying Criteria.
5. Annexure-5: Tender Schedule.
6. Annexure-6: Declaration for Reverse auction (Not Applicable)
7. Other documents as per this NIT.

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ANNEXURE - 1 PRE QUALIFYING CRITERIA

JOB	Civil, Architectural, Mechanical, Electrical, C&I and other allied Works of Natural Draught Cooling Towers (NDCTs) including supply of Materials, Labour, Tools & Plants, etc. required for Package-1 and Package-2 of 5X800 MW Yadadri STPP		
Tender No.	BHEL: PSSR: SCT: 1884		
SI. No.	PRE QUALIFICATION CRITERIA		Bidders claim in respect of fulfilling the PQR Criteria
		Name and Description of qualifying criteria	Page no of supporting document. Bidder must fill up this column as per applicability
A	Submission of Integrity Pact duly signed (if applicable) (Note: To be submitted by Prime Bidder & Consortium / Technical Tie up partner jointly in case Consortium bidding is permitted, otherwise by the sole bidder)	Applicable	
B	Technical		
	Refer Annexure 3	Applicable	To be filled in Annexure-4
C C-1	FINANCIAL Refer Annexure 4	Applicable	To be filled in Annexure-4
C-2	Net worth (only in case of Companies) Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive	Applicable	To be filled in Annexure-4
C-3	Profit Bidder must have earned profit in any one of the three Financial Years as applicable in the last three Financial Years as furnished for 'C-1' above.	Applicable	To be filled in Annexure-4

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C-4	Bidder must not be under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR, which will render him ineligible for participation in this tender, and shall submit undertaking to this effect	Applicable	
D	Assessment of Capacity of Bidder to execute the work as per Sl. No 9 of NIT (if applicable)	Applicable	By BHEL
E	Approval of Customer (if applicable) <u>Note:</u> Names of bidders who stand qualified after compliance of criteria A to D shall be forwarded to customer for their approval.	Applicable	BY BHEL
F	Price Bid Opening <u>Note:</u> Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria A to E	Applicable	BY BHEL
G	Consortium criteria (if applicable)	Not Applicable	
	<u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u>		
	<ol style="list-style-type: none"> 1. Bidder to submit Audited Balance Sheet and Profit and Loss Account for the respective years as indicated against C-1 above along with all annexures. 2. In case audited financial statements have not been submitted for all the three years as indicated against C-1 above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years i.e. total divided by three. 3. If Financial Statements are not required to be audited statutorily, then instead of audited financial statements, financial statements are required to be certified by Chartered Accountant. 4. C-2:-NETWORTH: Shall be calculated based on the latest Audited Accounts as furnished for C-1 above. Net worth =Paid up share capital* + reserves (* Share capital OR Partnership Capital OR Proprietor Capital as the case may be) (Net worth is required to be evaluated in case of companies). 5. C-3:- PROFIT : shall be PBT earned during any one year of the three financial years as in C-1 above 6. For Evaluation of PQR, the credential of the Bidder alone, and not that of the Group Company shall be considered. 		

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	<p>7. Time period for achievement of the 'Technical' criteria of PQR (as in 'B' above) will be the last 7 years ending on the 'latest date' of Bid submission</p> <p>8. Boiler means HRSG or WHRB or any other types of Steam Generator</p> <p>9. Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass, LP Bypass lines</p> <p>10. For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5TPH where ever rating of HRSG/BOILER is mentioned in MW. Similarly, where ever rating of Gas Turbine is mentioned in terms of Frame size, ISO rating in terms of MW shall be considered for evaluation.</p> <p>11. In case the experience/PO/WO certificate enclosed by bidders do not have separate break up prices for the E&C portion of Electrical and CI Works, (i.e. the certificates enclosed are for composite order for supply and erection of Electrical & CI and other works if any), then value of Erection and Commissioning for the Electrical & CI portion shall be considered as 15% of the supply & erection of Electrical & CI.</p> <p>12. Scope for capital overhaul of STG shall cover Bearing Inspection work and overhauling of all cylinders of the Turbine.</p> <p>13. In case the tendered scope is not a Pulverised Fuel Bidder, experience of Oil/Gas Fired Boilers can be considered unless otherwise specifically indicated in the PQR.</p>
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Note:

- (i) BIDDER SHALL SUBMIT PRE-QUALIFICATION CRITERIA FORMAT (Refer Annexure-4), DULY FILLED-IN, SPECIFYING RESPECTIVE ANNEXURE NUMBER AGAINST EACH CRITERIA AND FURNISH RELEVANT DOCUMENT INCLUSIVE OF WORK ORDER AND WORK COMPLETION CERTIFICATE ETC. IN THE RESPECTIVE ANNEXURES IN THEIR OFFER.
- (ii) **Authenticity of Credentials submitted by the Bidder against 'Pre-Qualifying Criteria' shall be verified from the Issuing Authority, by BHEL.** In case, any credential(s) is/are found to be unauthentic, offer of the bidder is liable to be rejected. BHEL reserves the Right to Initiate any further action as per the "Guidelines for Suspension of Business Dealings with Suppliers/Contractors" (Published in http://www.bhel.com/vender_registration/vender.php) and "Fraud Prevention Policy" (Published in <http://www.bhel.com/home.php>) as applicable.

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ANNEXURE - 2

CHECK LIST

NOTE: - Tenderers are required to either fill in or submit separately the following details. No column should be left blank.

1	Name and Address of the Tenderer		
2	Details about type of the Firm / Company		
3a	Details of Contact person for this Tender: Name : Mr. / Ms. Designation: Telephone No: Mobile No: Fax No: E-mail ID:		
3b	Details of alternate Contact person for this Tender: Name: Mr. / Ms. Designation: Telephone No: Mobile No: Fax No: E-mail ID:		
4	EMD DETAILS <i>(Remittance of EMD should be in line with Mode of Deposit as detailed in Vol 1A,Part-2,Chapter-1)</i>	Mode of Remittance: Ref No: Date : Amount:	
5	Validity of Offer	To be valid for six months from due date	
		Applicability (By BHEL)	Bidder Reply
6	Whether the format for compliance with PRE QUALIFICATION CRITERIA (ANNEXURE-I & ANNEXURE-IV) is understood and filled with proper supporting documents referenced in the specified format	Applicable	Yes/ No
7	Submission of Copy of Balance sheet and Profit and Loss Account for the last three years (Refer "Explanatory Note for the PQR" in Annexure 1 of NIT)	Applicable	Yes/ No
8	Submission of Copy of PAN Card	Applicable	Yes/ No

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9	Whether all pages of the Offer Documents are signed by the person authorized to sign this offer	Applicable	Yes/ No
10	Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed	Applicable	Yes/ No
11	Submission of Integrity Pact	Applicable	Yes/ No
12	Submission of Declaration by Authorized Signatory	Applicable	Yes/ No
13	Submission of No Deviation Certificate	Applicable	Yes/ No
14	Submission of Declaration confirming knowledge about Site Conditions	Applicable	Yes/ No
15	Submission of Declaration for relation in BHEL	Applicable	Yes/ No
16	Submission of Non-Disclosure Certificate	Applicable	Yes/ No
17	Submission of Copy Bank Account Details for E-Payment	Applicable	Yes/ No
18	Submission of Capacity Evaluation of Bidder for current Tender	Applicable	Yes/ No
19	Submission of Tie Ups / Consortium Agreement are submitted as per format Form F22 of Book-II Vol-1D	Not Applicable	—
20	Submission of Power of Attorney for Submission of Tender / Signing Contract Agreement	Applicable	Yes/ No
21	Submission of Analysis of Unit rates	Applicable	Yes/ No
22	Submission of Unquoted Price Bid	Applicable	Yes/ No
23	Tabular column showing Category- wise, month wise, man power deployment sub package wise planned for the execution of the scope of works.	Applicable	Yes/ No
24	Declaration by bidder for price opening through Reverse Auction (Refer Annexure-6 of Notice Inviting Tender)	Not Applicable	—
25	Copy of Organization Chart	Applicable	Yes/ No
26	Copy of Registration / Incorporation certificate, Partnership Deed (Certified by Notary Public) as applicable for firm.	Applicable	Yes/ No
27	Undertaking as per Financial C 4 Criteria of Annexure 1 of NIT regarding Bankruptcy Code Proceedings (IBC)	Applicable	Yes/ No

NOTE:

1. STRIKE OFF 'YES' OR 'NO', AS APPLICABLE.
2. TENDER NOT ACCOMPANIED BY THE PRESCRIBED **ABOVE APPLICABLE DOCUMENTS** ARE LIABLE TO BE SUMMARILY REJECTED.
3. For Sl. No.11 to 21 above, the formats are available in "Volume ID of Volume I Book-II – Forms and Procedures" of this tender specification.

DATE:

AUTHORISED SIGNATORY

(With Name, Designation and Company seal)

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Annexure-3

B Technical Pre-Qualification Criteria

B 1 Bidder should have executed "Similar works" for any one of the following in the last seven years preceding the latest date of bid submission.

B.1.1 One (1) work of value not less than INR 222.96 Crores

(OR)

B.1.2 Two (2) works each of value not less than INR 139.35 Crores

(OR)

B.1.3 Three (3) works each of value not less than INR 111.48 Crores

Note for B.1.1 to B.1.3

- "Similar works" Means Piling or Civil or Structure or 'Civil and Structures' or Chimney or Cooling Tower (value of Construction works including Supplies of related Materials).
- If the bidder had executed Supply separately & Services separately in two or more different work orders, but for the same work (system) in the same project, then supply and services shall be combined and considered as "one" work for the purpose of evaluation.
- Bidder shall furnish the PO/ WO copy / copies of executed contract/s along with Completion Certificate/s for the value of work/s executed
- The term "Executed" means: the bidder should have achieved the criteria specified even if the contract has not been completed or closed.

AND

B.2 The bidder should have also executed the following in the last seven years preceding the latest due date of bid submission:

Bidder should have Designed, Supplied, Erected and Commissioned including Civil Works of at least one Natural Draught Cooling Tower (NDCT) in RCC construction with minimum flow of 25000 CUM/HR, which has been successfully in use for at least 1 year in Thermal Power Plant or in any Industry. The date of Certificate of Completion of successful operation of the NDCT for at least one year should not be later than the latest Due Date of bid submission.

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- Documents to be submitted in support of B.2 criteria
- i. Approved Drawings/ Technical Data sheets, etc. are to be submitted showing the minimum flow requirement also.
- ii. Bidder shall furnish any one from below in support of successful performance of NDCT for one year as required under B.2 criterion:

a) Satisfactory performance feedback certificate from the End Customer (Owner) / EPC Contractor of End Customer for at least one successfully executed contract which has been in use for at least one year indicating salient features viz. year of commissioning of NDCT, rating of project, flow of NDCT, project name, etc., date of issue of certificate and name/ designation of the certificate issuer for power plant/ similar application industry. The date of satisfactory performance feedback certificate should not be later than the last due date of bid submission.

Note: The term “successfully in use for at least 1 year” refers to age of plant after successful commissioning and handed over for operation to customer. The age of date of successful commissioning or handing over protocol/ certificate shall be minimum 1 year on the last due date of bid submission

OR

b) The bidder has been awarded one repeat or another contract for NDCT from End Customer (Owner) / EPC Contractor of End Customer for power plant/ similar application industry. Repeat or another contract shall be considered when the second contract is given by the same End Customer (Owner) / EPC Contractor of End Customer after lapse of minimum 1 year from execution of first contract

Note: Supporting documents for execution of the Contract viz. commissioning protocol/ PG test report of the 1st contract along with PO/ WO copy of the

- iii. Document required in addition to those mentioned above: Any additional document required in support of above documents to establish the co-relation between the above documents and the supplied item shall be provided by the bidder. BHEL reserves the right to verify the same and consider for further processing
- iv. Bidder to submit all supporting documents in English, if documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted.
- v. Notwithstanding anything stated above, BHEL reserves the right to assess the

NOTICE INVITING TENDER

capabilities and capacity of the bidder/ collaborators to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL

- Consortium Bidding is not allowed in this tender. However, for above mentioned Technical Pre-Qualification Criteria alone, in case the bidder is a subsidiary but does not meet the requirement of Clause B.1 & B.2 above, then, the credentials of their parent / holding company shall be considered for satisfying the PQC subject to the following
 - i. The parent / holding company shall have a controlling stake of 50% or more in the bidder organization /company
 - ii. The parent / holding company provides an undertaking that they are jointly and severally responsible for successful performance of the contract

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ANNEXURE - 4

Additional Format to be submitted by Bidders in an additional separate cover superscribed "Annexure to Pre-Qualifying Criteria".

Name of the Bidder: M/s.....

Sl. No.	PQR Ref	PQR (Reproduced from Annexure – 1)	Qualifying Experience	Work order Ref with page no in Offer for supporting documents	Completion certificate ref for the referred Work with page no in Offer for supporting documents	Details of work with Project, Unit, Quantity / rating & Period	Remarks
1	<u>Technical B:</u>	<p>B 1 Bidder should have executed "Similar works" for any one of the following in the last seven years preceding the latest date of bid submission.</p> <p>B.1.1 One (1) work of value not less than INR 222.96 Crores (OR)</p> <p>B.1.2 Two (2) works each of value not less than INR 139.35 Crores (OR)</p>					

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		<p>B.1.3 Three (3) works each of value not less than INR 111.48 Crores AND</p> <p>B.2 The bidder should have executed the following in the last seven years preceding the latest due date of bid submission:</p> <p>Bidder should have Designed, Supplied, Erected and Commissioned including Civil Works of at least one Natural Draught Cooling Tower (NDCT) in RCC construction with minimum flow of 25000 CUM/HR, which has been successfully in use for at least 1 year in Thermal Power Plant or in any Industry. The date of Certificate of Completion of successful operation of the NDCT for at least one year should not be later than the latest Due Date of bid submission (Remaining Text As per Annexure-3 of NIT)</p>				
2	<u>Financial</u> C1	TURNOVER <p>Bidders must have achieved an average annual financial turnover (Audited) of</p>				

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		INR 83.61 Crore (Rs. Eighty Three Crores Sixty One lakhs only) or more over last three Financial Years (FY) i.e. 2016-17, 2017-18 and 2018-19					
3	<u>Financial C2</u>	NETWORTH (only in case of Companies) Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive					
4	<u>Financial C3</u>	PROFIT Bidder must have earned profit in any one of the three Financial Years as applicable in the last three Financial Years as furnished for 'C-1' above.					
5	<u>Financial C4</u>	Bidder must not be under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR, which will render him ineligible for participation in this tender, and shall submit undertaking to this effect					

Note: Indicate the page nos in the respective columns for the enclosed PQR supporting documents in the offer

NOTICE INVITING TENDER

ANNEXURE-5

Tender Schedule

Description	Schedule	Remarks
Technical Bid Opening	As mentioned in Notice Inviting Tender.	
Communication from BHEL for Clarifications, if any, required by BHEL	Within Three days from tender opening date	
Last date for Bidders to submit the clarifications / documents required	Within Six days from tender opening date	Bidders to note that their competent representative to be readily available in this week for offering clarifications / submitting the further documents, if any, required.
If Reverse Auction is applicable, then the tentative date for conducting Reverse Auction	Applicable	Exact date of reverse auction shall be informed to the bidders through BHEL's reverse auction agency. Bidders to note that their competent representative to be readily available at one-day notice for Reverse Auction.

Note:

1. Bidders to note that the above schedule should be adhered to and no further extension will be given. To adhere to the schedule indicated below, Bidders should ensure the adequacy of the documents submitted in their offer, with proper validation.

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Annexure 6

DECLARATION BY BIDDER FOR PRICE OPENING THROUGH REVERSE AUCTION (To be typed and submitted in the Letter Head of the Company / Firm of Bidder)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub : Declaration by Bidder for Price opening through Reverse Auction

Ref : 1) NIT / Tender Specification No:,
2) Participation in the Reverse Auction

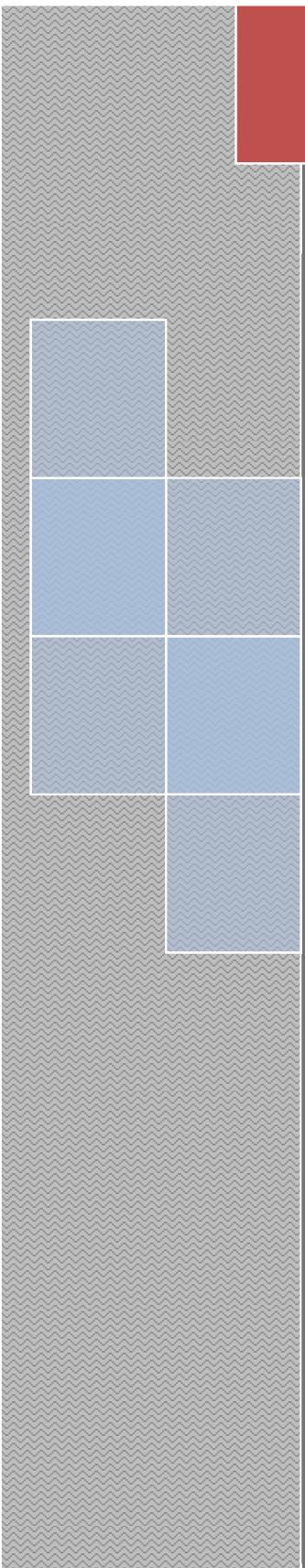
We have studied and understood the clauses of Reverse auction published in the tender specification.

Strike out either (1) or (2) of the following whichever is not applicable.

1. I / We, hereby declare that I / we **shall be** participating in the Reverse Auction in case BHEL opts for opening the price bid through Reverse auction.
2. I / We, hereby declare that I / we **shall not be** participating in the Reverse Auction in case BHEL opts for opening the price bid through Reverse auction.

Yours faithfully,

Date: (Signature, Date & Seal of Authorized Signatory of the Bidder)



VOLUME – IA
Part I & II

TECHNICAL
CONDITIONS OF
CONTRACT (TCC)



TECHNICAL CONDITIONS OF CONTRACT (TCC)

Sl no	DESCRIPTION	Chapter	No. of Pages
Vol I A	Part-I: Contract specific details		
1	Project Information	Chapter-I	02
2	Scope of works	Chapter-II	03
3	Facilities in the scope of Contractor / BHEL (Scope Matrix)	Chapter-III	09
4	T&Ps and MMEs to be Deployed by Contractor	Chapter-IV	10
5	T&Ps and MMEs to be deployed by BHEL on sharing basis	Chapter-V	01
6	Time Schedule	Chapter-VI	05
7	Terms of Payment	Chapter-VII	03
8	Taxes and other Duties	Chapter-VIII	03
9	Bill of Quantity	Chapter-IX	01
10	General	Chapter-X	09
11	Accounting of Materials	Chapter-XI	07
12	Progress of Work	Chapter-XII	02
13	Scope of Material Handling	Chapter-XIII	02
Vol IA	Part-II: Technical specifications		
1	Corrections / Revisions in General Conditions of Contract and Forms & Procedures	Chapter 1	17
2	Revised forms – Form 14 and Form 15	Chapter-2	12
3	Health, Safety and Environment Plan for Site Operation By Subcontractors" (Doc. No. HSEP:14 Rev 00),	Chapter-3	72
4	Hire charges on issue of capital tools & Plants (Only corresponding charges)	Chapter-4	14
5	Proforma of Bank Guarantee (in lieu of Earnest Money)- Form WAM 23	Chapter-5	03
6	Proforma of Bank Guarantee (in lieu of Security Deposit)- Form WAM 22	Chapter-6	03
7	Procedure 2.3 of Arbitration & Conciliation	Chapter-7	11
8	Integrity pact	Chapter-8	05
9	TECHNICAL SPEC NDCT (BOOK 1 OF 2)	Chapter-9	454
10	TECHNICAL SPEC - NDCT (BOOK 2 OF2)	Chapter-10	217
11	labour colony spec	Chapter-11	10
12	Labour Quarters - Aerocon-RR MASONRY	Chapter-12	1
13	Layout With Toilets	Chapter-12	1
14	PE-DG-417-602-C001 Rev 2_GEOTECHNICAL INVESTIGATION LAYOUT	Chapter-14	1

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VOLUME - IA PART – I CHAPTER – I

1.1 PROJECT INFORMATION

INTRODUCTION

5 x 800 MW Yadadri Thermal power station is being set up by TELANGANA STATE GENERATION CORPORATION at a site in Veerlapalem village, Dameracherla Mandal, NALGONDA DISTRICT, TELANGANA STATE, India. The Bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually binding on BHEL/Owner. All relevant site data /information as may be necessary shall have to be obtained /collected by the Bidder.

1.1.	Name of the Project	YADADRI Thermal Power Station
1.2.	Station Capacity	5X800 MW (Coal based)
1.3.	Owner	Telangana State Power Generation Corporation Limited (TSGENCO)
1.4.	Site Location	Site is located 7 km from the SH 2 Miryalaguda - Vadapalle Highway.
1.5.	Latitude	16° 42'20.40 N
1.6.	Longitude	79° 34'41.56 E
1.7.	Nearest Town	30 Km Miryalaguda
1.8.	Nearest Railway Station	6.5 Km Damercherla
1.9.	Nearest Airport	130 Kms (Vijayawada)
1.10.	Site Conditions	
1.11.	Ambient Temperature	
	Daily minimum (average)	10°C
	Daily maximum (average)	47°C
	Design Ambient Temperature	50°C
	Ambient temperature	38°C

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	(performance)	
1.12.	Relative Humidity for design / efficiency	48-84 %
1.13.	Annual rainfall, mm	600 mm
1.14.	Plant Elevation above MSL	85 m above MSL
1.15.	Mean Wind Speed	8 km/h
1.16.	Wind Pressure	As per the latest revision of IS 875/1987
1.17.	Seismic co-efficient	Zone-II as per IS- 1893 (Part-IV)

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VOLUME-IA PART-I CHAPTER – II

1.2 SCOPE OF WORKS

THE SCOPE OF THE WORK WILL COMPRIZE OF BUT NOT LIMITED TO THE FOLLOWING:

(All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

- 1.2.1. The scope of works all Civil, architectural, Mechanical, Electrical, C&I, works of Natural Draught Cooling Tower for the package of 5X800 MW Yadadri Super Critical Thermal Power Project site including supply of materials for civil (**excluding Cement, Structural steel & Reinforcement steel for civil works**) Mechanical, Electrical & C&I works required, all labour, tools & plants. (**BHEL shall provide cement & reinforcement steel for civil work and structural steel for structural works only for incorporation in the permanent works as free supply**).
- 1.2.2. The subject tender consists of 2 packages – Package 1 & 2 and the list of structures and buildings in each package is mentioned below.

Package 1: NDCT of Unit- 1, Unit-3 & Unit-5

Package 2: NDCT of Unit-2 & Unit-4

- 1.2.3. The scope of work includes supply, construction, erection and commissioning excluding engineering including supply of complete bought out materials, hot water distribution system up to battery limit, cold water basin and outlet channels up to battery limit, sludge pit, stair case from ground level to water distribution level & top of CT and all other equipment and accessories as mentioned herein after.
“Note: The NDCT contractor is required to own the owner approved thermal design and GA drawing such that the responsibility of cooling tower performance shall remain with the bidder in all manners. Any questions or clarifications regarding thermal design may be sought by the NDCT contractor to satisfy himself of its veracity. The tentative quantities for thermo- hydraulic components (Fills and

TECHNICAL CONDITIONS OF CONTRACT (TCC)

distribution system) listed for S. nos. 24 and 25 of price bid as per BHEL's design indicated in Annexure -1 of section IA (page no. 112 of 454 of technical specification Technical Specification for Natural Draft Cooling Towers (book 1 of 2)) and the same is calculated based on the area inside the NDCT at respective levels shown in the GA drawing. If found necessary, "the NDCT contractor may suggest modifications to the thermos-hydraulic components (listed at S. Nos. 24 and 25 in the price bid) with technical reasoning/ analysis/ calculations to justify the measures to improve the thermal performance of the NDCT which will be guaranteed by the bidder" and such the responsibility of cooling tower performance shall remain with the bidder in all manners.

While suggesting justifiable reasons for changes as above the NDCT contractor shall abide by the following constraints. Also, the NDCT contractor shall guarantee the NDCT performance considering the constraints that are inviolable.

- 1) Civil design of NDCT shell, shell profile and shell dimensions at various heights
- 2) Foundation of NDCT
- 3) Air inlet height
- 4) Basin & internal structure column- beam grid dimensions and elevations
- 5) Water distribution ducts
- 6) Layout of CW hot water inlet header to cooling tower
- 7) Height and diameter of NDCT

Once the changes with justifiable reasons/ analyses / calculations provided by the NDCT contractor are accepted by BHEL/ consultant and duly incorporated, the NDCT contractor will vet the final thermal design & GA of NDCT and furnish the performance guarantee. The thermal design and GA vetted by the NDCT contractor shall be furnished to customer for approval. The NDCT contractor shall vet the thermal design as above within two weeks of award of contract, for further approval by BHEL/ customer

The GA drawing already approved by owner may be required to be approved again depending on changes to the thermos- hydraulic components, if any and

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the NDCT contractor shall furnish the relevant modifications agreed to by BHEL/ customer to these items (only) keeping the other dimensions frozen for further approval from BHEL/ customer.

The complete design and engineering of NDCT shall remain in the scope of BHEL's consultant.

All mechanical/ electrical/ C&I drawings prepared by BHEL consultant will be reviewed by NDCT contractor before submission to customer for approval.

The NDCT contractor is required to estimate the "lump sum" cost of the thermo-hydraulic components based on his modified arrangement (if any) or as per Annexure-A. This lump sum cost shall be added to the cost of other BOQ items quoted by the NDCT contractor on item – rate basis to arrive at the total cost of evaluation.

No change in the quantities and cost of thermo- hydraulic components shall be allowed during execution due to any reason whatsoever from that quoted during **tender stage.**"

It is not the intent to list all details herein, scope of supply listed in brief as follows

I. MECHANICAL:

- a. Incoming hot water piping, including vertical run, supported on cooling tower, motorized butterfly valves on hot water risers. Terminal point for hot water pipe shall be as per enclosed NDCT GA drawing. Welding at terminal point shall be in bidder's scope. Bidder shall also supply a pressure gauge & temperature gauge at the terminal point. Any reducer/ expander required at the terminal point shall also be in the bidder's scope.
- b. Inlet louvers, tower fills & fill support, drift eliminators including all supporting structures fastening arrangements & accessories.
- c. Screens along with guides embedded in concrete shall be provided at the outlet of cold water channel.
- d. Sluice gate with mechanical jack arrangement and guides in each of the cold water outlet channel connection from the cold water basin.

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- e. Manually operated chain pulley blocks together with the monorails and supporting frames for the handling of screen and gates.
- f. Knife-edge gate valve/ sluice valve in each de-sludge connection and also de-sludge piping up to the disposal point at local storm water drain channels.
- g. Pipe spools to be embedded in sludge pit walls and terminated with flanged end at suitable distance from outer face of respective wall.
- h. Water distribution system consisting of pipes, hangers & pipe supports & anchoring arrangement for all piping coming under the scope of supply.
- i. Two (2) nos. (1+1) sludge pumps (submersible type) complete with electric motors, non-return valve, isolation valve, piping support, hangers etc. for cold-water basin drainage. The bidder shall terminate pump discharge pipe work at a distance of 100M from sludge pit.
- j. Counter flange, bolts, nuts & gasket for all piping connections in the scope of bidders and also at terminals.

II. ELECTRICALS:

- a. Complete electrical equipment s per specification/ details indicated in technical specification (Section – II B) shall be in bidder's scope.
- b. The scope of power & control cables & special cables shall be as per section II B (electrical).
- c. Base plate, foundation plate, anchor bolts, sleeves, inserts in concrete work for electrical and mechanical equipment & accessories

III. C & I:

- a. Removable type pitot tube at each hot water inlet- piping header to measure the flow (during performance guarantee test only). The pitot tube shall be left with customer after the completion of the test.
- b. One number pressure guage and one number temperature guage at hot water pipe header at T.P.
- c. One number psychrometer

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- d. Local control panel for sump/ sludge pumps (submersible type)
- e. Level switches for sump/ tank level high/normal/low/very low interlocks
- f. Actuator for motorized BFV at inlet of hot water pipes

IV. CIVIL:

- a. Complete civil works includes excavation, shoring, dewatering, backfilling, concrete work including shuttering, sand filling, disposal of surplus soil outside plant boundary, formwork including automatic climb form (jump form), laser beam survey instruments, fabrication, galvanizing and erection of steel structures and inserts, finishing anchor bolts, RCC sump/ duct, laying and testing hot water pipe line, water proofing, providing PVC water stops and joint fillers, drainage and other ancillary items connected with cooling towers. All faces of concrete structures and steel structures coming directly in contact with water shall be coated with corrosion resistant coating system as approved. The surfaces that would include are inner face of the hyperbolic shell, raker column faces, inner faces of cold water basin, fill support structures, hot water distribution ducts & channels, cold water channels, etc. The scope of this work shall consist of, but not limited to, the construction of reinforced concrete double curvature hyperbolic shell, ring beams, foundations (including blasting/ piling (as applicable)), cold water basins with partition walls, hot water ducts, drain sumps, external drain chamber with associated piping work, cold water channel with sluice gate up to the terminal point as specified elsewhere, hoists and monorails, primary and secondary hot water distribution duct, fill support system including columns and beams, drift eliminators, testing of cold water basin for water tightness, external stairs. Sludge pit for each basin section, all other staircases/ ladders as required, doors and their frames, walkways, platforms, steel fitting, fixture, inserts including fabrication of, hand railing, providing protective measures in concrete and steel materials against effect of water and other chemicals on the completed structure, supply & application of painting at site, etc.

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- b. The civil construction of the cooling tower shall be in accordance with following technical specifications and the data specification sheets enclosed with this specification –
 - i. Earthwork in excavation and backfilling
 - ii. Cement concrete (plain & reinforced)
 - iii. Masonry and allied work
 - iv. Finish to masonry and concrete
 - v. Metal doors, windows, ventilators, louvers, etc.
 - vi. Roof water proofing, insulation and allied work (as applicable)
 - vii. Painting, white washing, polishing, etc (as applicable)
 - viii. Sheet work in roof and siding (as applicable)
- c. The technical specifications are of general nature. Only those portions of the specifications which relate to the various works required to be done as per technical requirements as specified in the tender document need to be considered.
- d. The cooling tower shell, ring beams, diagonal columns at base supporting ring beams below shell, cold water basin, fill support frame work, hot water distribution duct, cold water channel, louver, etc. shall be cast in-situ RCC construction.

V. The following are also included in bidder's scope:

- a. One set of special tools & tackles required for maintenance of equipment & accessories in the cooling towers.
- b. Various drawings, datasheets, calculations, test reports/ certificates, operation & maintenance manuals including as built drawing etc. as specified & as necessary.
- c. Supply of first fill of lubricants for all equipment under this package including second fill/ replenishments as necessary during & after commissioning till handing over of the plant.
- d. Supply of commissioning spares as on when required basis.

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- e. Scope of services shall include but not limited to erection/ testing/ commissioning/ trial run/ performance testing & handing over of cooling towers. Transportation of equipment, material to site, local clearance, storage at site etc & supply of all labour including supervision personnel, materials, erection tools & tackles etc. as necessary for expeditious execution of works etc. are also included in bidder's scope. It shall be the responsibility of the bidder to arrange all T & Ps required for execution of complete job including erection & civil works.

VI. Equipment & services to be provided by the purchaser:

- a. Supply & erection of incoming hot water piping up to bidder's terminal point
- b. Supply & erection of sludge discharge piping beyond the bidder's terminal point, as applicable
- c. Cold water outlet channels for cooling tower beyond the bidder's terminal point.
- d. For electrical, civil and C & I work refer section C2/ D2, C3 & C4 respectively enclosed herein.

Note: The above provided list is indicative only for the bidder's guideline. For further, detailed scope of work is mentioned in relevant clause no. of technical specification. Any other structure / foundation not mentioned above, but required for completion of the scope of work in total, deemed to have been included in the bidder scope under this contract. Such work will be executed under this contract by bidder as per the direction of Engineer in charge. If any item of work not available in the rate schedule of this contract, the rate will be fixed in line with clause 2.15.7 of GCC.

Cement & Reinforcement steel for civil works, Structural steel for structural works shall be provided by BHEL free of cost for incorporating them to the permanent works only.

1.2.4. The works to be performed under this contract consist of providing all labour, supervision, material, scaffolding, construction equipment's, tools and plants,

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temporary works, supplies including POL (petroleum, oil, lubricants, etc.), transportation and all incidental items not shown or specified but reasonably implied or necessary for the proper completion of work in all respects. Testing of all materials, concrete, earthwork other allied works, preparation of bar bending schedules on the basis of construction drawings, preparation of fabrication drawings etc. are included on the rates of items of work. Works shall only be carried out with approved structural fabrication drawings.

- 1.2.5. The area of work shall be cleared of all vegetation, rubbish and other objectionable Matter and materials removed shall be burnt or otherwise disposed of as directed by The Engineer-in-Charge. No separate payment for these operations shall be made. The cost of all these operations shall be deemed to have been included in the unit rates rendered for the different items under bill of quantities
- 1.2.6. All the works areas shall be adequately flood lighted to the satisfaction of the Engineer-in-Charge when the work is in progress during the night shifts.
- 1.2.7. The unit rates shall include all material equipment, fixtures, labour construction plant, temporary works and everything whether of permanent or temporary nature necessary for the completion of job in all respects.
- 1.2.8. The unit rates for various items shall include all the stipulations mentioned in technical specifications for the particular BOQ item and nothing extra over B.O.Q rates shall be payable.
- 1.2.9. Drawings showing enough details for the construction as per the specification shall be furnished to the contractor in a phased manner.
- 1.2.10. The bidder should fully apprise himself of the prevailing conditions at the proposed site, climatic conditions including monsoon pattern, local conditions, soil strata and site specific parameters and shall include for all such conditions and contingent measures in the bid, including those which may have not been specifically brought out in the specifications.
- 1.2.11. Land for labour colony shall be provided by BHEL approximately nearer to site. The contractor to construct labour colony/ hutment as per the technical

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specification No.PSSR/PMX/CVL/Labour colony/01, Rev-00 enclosed along with this tender. The contractor shall provide adequate water arrangement for drinking/washing/bathing with required toilets, drainage system, and electrification etc. in labour colony. Suitable paved area to be provided in the labour colony.

1.2.12. For further detailed scope of work, refer relevant chapters in the technical specification.

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VOLUME IA PART – I CHAPTER – III

1.3 FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL (SCOPE MATRIX)

SI.No	Description	Scope to be taken care by		Remarks
		BHEL	Bidder	
1.3.1.1.0	ESTABLISHMENT			
1.3.1.1.1	FOR CONSTRUCTION PURPOSE:			
A	Open space for office	Yes		
B	Open space for storage	Yes		
C	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
D	Bidder's all office equipment's, office / store / canteen consumables		Yes	
E	Canteen facilities for the bidder's staff, supervisors and engineers etc.		Yes	
F	Firefighting equipment's like buckets, extinguishers etc.		Yes	
G	Fencing of storage area, office, canteen etc. of the bidder		Yes	
1.3.1.1.2	FOR LIVING PURPOSES OF THE BIDDER			
A	Open space		Yes	
B	Living accommodation		Yes	
1.3.1.2.0	ELECTRICITY			
1.3.1.2.1	Electricity For construction purposes			Free of charges as provided by TSGENCO
1.3.1.2.1.1	Single point source	Yes		
1.3.1.2.1.2	Further distribution for the work to be done which include supply of materials and execution		Yes	
1.3.1.2.2	Electricity for the office, stores, canteen etc of the bidder which include:		Yes	

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Sl.No	Description	Scope to be taken care by		Remarks
		BHEL	Bidder	
1.3.1.2.2.1	Distribution from single point including supply of materials and service		Yes	
1.3.1.2.2.2	Supply, installation and connection of material of energy meter including operation and maintenance		Yes	
1.3.1.2.2.3	Duties and deposits including statutory clearances for the above		Yes	
1.3.1.2.2.4	Living facilities for office use including charges		Yes	
1.3.1.2.2.5	Demobilization of the facilities after completion of works		Yes	
1.3.1.2.3	Electricity for living accommodation of the bidder's staff, engineers, supervisors etc on the above lines.(in case BHEL provides this facility, the scope should be given without ambiguity)		Yes	
1.3.1.3.0	WATER SUPPLY			
1.3.1.3.1	For construction purposes:	Yes		Free of charges as provided by TSGENCO
1.3.1.3.1.1	Making the water available at single point	Yes		
1.3.1.3.1.2	Further distribution as per the requirement of work including supply of materials and execution		Yes	
1.3.1.3.2	Water supply for bidder's office, stores, canteen etc.			
1.3.1.3.2.1	Making the water available at single point		Yes	
1.3.1.3.2.2	Further distribution as per the requirement of work including supply of materials and execution		Yes	
1.3.1.4.0	LIGHTING			

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Sl.No	Description	Scope to be taken care by		Remarks
		BHEL	Bidder	
1.3.1.4.1	For construction work (supply of all the necessary materials) At office storage area At the preassembly area At the construction site / area		Yes	
1.3.1.4.2	For construction work (Execution of the lighting work / arrangements) At office storage area At the preassembly area At the construction site /area		Yes	
1.3.1.5.0	COMMUNICATION FACILITIES for site - operations of the bidder			
1.3.1.5.1	Telephone, Fax, internet, intranet, email etc		Yes	
	CONSTRUCTION FACILITIES			
1.3.2.1.0	Engineering works for construction			
1.3.2.1.1	Providing the construction drawings for all the equipment covered under this scope	Yes		
1.3.2.1.2	Drawings for construction methods		Yes	In consultation with BHEL
1.3.2.1.3	As-built drawings – wherever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes	Yes	Yes	"
1.3.2.1.4	Shipping lists etc for reference and planning the activities	Yes	Yes	"
1.3.2.1.5	Preparation of site construction schedules and other input requirements		Yes	In consultation with BHEL, As per requirement of BHEL targets

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Sl.No	Description	Scope to be taken care by		Remarks
		BHEL	Bidder	
1.3.2.1.6	Review of performance (Form-14) and revision of site construction schedules in order to achieve the end dates and other commitments		Yes	
1.3.2.1.7	Weekly construction schedules based on Sl No 1.3.2.1.5		Yes	
1.3.2.1.8	Daily construction / work plan based on Sl No 1.3.2.1.7		Yes	For daily monitoring meeting at site
1.3.2.1.9	Periodic visit of the senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.		Yes	
1.3.2.1.10	Preparation of preassembly bay		Yes	
1.3.2.1.11	Laying of racks for gantry crane if provided by BHEL or brought by the contractor / bidder himself			Not applicable

1.3.3 OPEN SPACE:

Availability of land within plant boundary is very limited and the contractor has to plan and use the existing land considering the use of land by other Civil /mechanical/ electrical contractors and the storage of plant machineries and materials. The existing land shall be shared by all erections agencies. Land will be allocated with certain time frame and to the extent available/ considered necessary, and will be reviewed by BHEL depending upon the area availability. Area within plant premises for fabrication, batching plant, office, storage area etc. for construction purpose shall be provided as per availability free of cost. The contractor will be responsible for handing back all lands, as handed over to him by BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

1.3.4 ELECTRICITY:

- 1.3.4.1 Construction power will be provided to the contractor at one single point within the plant area by BHEL on free of cost basis as per the as provided by TSGENCO. The contractor to Provide necessary meter for measuring the power consumption. The contractor shall make his own arrangement for further distribution with necessary isolator/LCB etc.
- 1.3.4.2 Necessary “Capacitor Banks” to improve the Power factor to a minimum of 0.9 shall be provided by the contractor at his cost. Penalty if any levied by customer on this account will be recovered from contractor’s bills.
- 1.3.4.3 Any duty, deposit involved in getting the Electricity shall be borne by the bidder. As regards contractor’s office shed also all such expenditure shall be borne by the contractor.
- 1.3.4.4 Provision for distribution of electrical power from the given single central common point to the required places with proper distribution boards, approved cables and cable laying including supply of all materials like cables, switch boards, pipes etc., observing the safety rules laid down by electrical authority of the State / BHEL / their customer with appropriate statutory requirements shall be the responsibility of the tenderer / contractor.
- 1.3.4.5 BHEL is not responsible for any loss or damage to the contractor’s equipment as a result of variations in voltage / frequency or interruptions in power supply.
- 1.3.4.6 Contractor has to make their own arrangements for electricity requirement for labour colony at their cost.
- 1.3.4.7 As there are bound to be interruptions in regular power supply, power cut/ load shedding in any construction sites, contractor should make his own arrangement for alternative source of power supply through deployment of adequate number of DG sets at their cost during the power breakdown / failure to get urgent and important work to go on without interruptions. No separate payment shall be made for this contingency

TECHNICAL CONDITIONS OF CONTRACT (TCC)

1.3.5 WATER:

1.3.5.1 Construction Water at single point will be provided by BHEL as provided by TSGENCO and further distribution is in the scope of bidder. The required pumps & accessories, pipes for drawing water from the given point and further distribution will be arranged by the contractor at their cost to go on without interruptions.

1.3.5.2 In case of non-availability of water, the contractor shall make his own arrangements of water suitable for construction purpose to have un-interrupted work. No separate payment shall be made for any contingency arrangement made by contractor, due to delay/ failure for providing water supply.

1.3.6 MATERIAL SUPPLY

Supply / providing aggregate, river sand and all other materials required for the work are in the scope of the contractor. **BHEL shall provide cement & reinforcement steel for civil works, structural steel for fabrication works only for incorporation in the permanent work AS FREE SUPPLY**

- Regarding supply of cement, the cement shall be provided normally in bulkers and shall be unloaded in the silos (2 Nos minimum 100MT each per 30 Cum batching plant and 3 nos minimum 100MT each per 60 Cum batching plant) to be installed by the bidder nearer to their batching plants. This is only minimum requirement and the No. of cement silos shall be increased based on the site requirement. On advance request of the bidder, the cement shall be supplied in Bags for other than RCC works like masonry, flooring works etc. Advance request for supply of cement in bags shall be minimum two months.
- The steel material will be issued from BHEL stores, within the plant premises. Collection and transporting to the place of work is in contractor's scope without any extra cost to BHEL. The steel will be issued to the agency in standard lengths. In some instances, for 8mm, 10mm & 12mm dia. reinforcement steel will be supplied in coil form. No extra claims will be entertained against issue of Non-standard lengths of steel and de coiling of 8mm, 10mm & 12mm dia. steel.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

- Bidder to note that steel materials required for Embedment's, inserts, MS Grating, Galvanized Grating, GI Handrail, Stainless Steel Handrail, SS Sheets for Bunker liner, Stop Lock Gate, Stationery Screen, fasteners like MS/HT/HSFG bolts/nuts, lock nuts, washers and foundation bolts other than those supplied by BHEL, shall be supplied by the bidder. However, Bidder shall use the scrap materials available with BHEL or with the respective bidders, for their use in the permanent works as embedment/inserts etc. after necessary store issue formalities, if taken from BHEL and shall be accounted for monthly reconciliation, if it belongs to the bidder's scrap materials.
- If any matching sections of steel are not available with BHEL, contractor may arrange these sections on certification of BHEL and the landing cost of sections to site will be reimbursed based on the prevailing rate at SAIL at the time of procurement at the nearest SAIL outlet with the freight charges against supporting document.

1.3.6.1 Aggregates:

Aggregates shall be natural or crushed gravel or crushed rock and free from deleterious materials. It shall comply with the requirements of IS-383. All fine and coarse aggregate shall be tested for susceptibility to alkali silicate reaction in a laboratory approved by the engineer in-charge.

- Coarse aggregate
Aggregate of sizes ranging between 4.75mm and 150m will be termed as coarse aggregate. Only coarse aggregate from approved quarries and conforming to IS:383 will be allowed to be used on the works. Aggregates shall be washed to make it free from deleterious materials, if necessary.
The grading of coarse aggregates by sieve analysis shall be as per IS:383.
- Fine aggregate
Aggregate smaller than 4.75mm and within the grading limits and other requirements set in IS:383 will be termed as fine aggregate or sand. Only

TECHNICAL CONDITIONS OF CONTRACT (TCC)

fine aggregate from approved sources and conforming to the above IS specification will be allowed to be used on works.

In certain cases there may be two types of sand, one very fine sand and the other very coarse. In such cases, the two types shall be combined to meet the requirements of a particular zone of IS:383. In most cases, the preferred zone is Zone-II. Bidder shall supply/ provide only river sand for this scope of work.

1.3.7 CONSUMABLE

All consumables, like gas, electrodes, chemicals, lubricants etc. required for the scope of work, shall be arranged by the contractor at his cost unless otherwise specifically mentioned in the contract.

In the event of failure of contractor to bring necessary and sufficient consumables, BHEL may arrange for the same at the risk and cost of the contractor. The entire cost towards this along-with overhead shall be paid by the contractor or deducted from the contractor's bills.

1.3.8 LIGHTING FACILITY

Adequate lighting facilities such as flood lamps, hand lamps and area lighting shall be arranged by the contractor at the site of construction, and contractor's material storage area etc. at his cost.

1.3.9 CONTRACTOR'S OBLIGATION ON COMPLETION:

On completion of work, all the temporary buildings, structures, pipe lines, cables etc. shall be dismantled and leveled and debris shall be removed as per instructions of BHEL by the contractor at his cost. In the event of his failure to do so, the expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

1.3.10 **Blasting**

Bidder should produce documentary evidence of valid blasting license for Telangana State (or) should produce documents for having tie-up with agency who is possessing valid blasting license for Telangana state within 30 days from issue of LOI.

For details on blasting refer enclosed bill of quantity (rate schedule) & volume-IA Part-II Chapter 2 General technical specification.

1.3.11 **DEWATERING**

Contractor shall ensure at all times that his work area & approach/ access roads are free from accumulation of water, so that the materials are safe and the erection/ progress schedule are not affected. No separate claim in this regard shall be admitted by BHEL. No separate payments for dewatering of subsoil, surface water or catchments water, if required, at any time during execution of the work including monsoon period shall be considered by BHEL.

1.3.12 **BID DRAWINGS**

Plot plan drawing enclosed is only tentative & for information purpose and this may get revised during execution.

VOLUME-IA PART-I CHAPTER – IV

1.4 T&P'S TO BE DEPLOYED BY CONTRACTOR

- 1.4.1 All the tools and plants required for satisfactory completion of the work have to be arranged by the contractor.
- 1.4.2 The contractor is required to arrange the following suggestive minimum Major T&Ps per package and minimum other T&Ps for the satisfactory completion of the work

FOR PACKAGE-1

Sr No	Major T&P	Mobilizing time from the date of start of work
B1	3 No. Poclain CK90 excavator	1 no. within 20 days, 1 No within 45 days and balance in a progressive manner depending up on the requirement.
B2	3 no. automatic concrete batching plant with printing facility (30 Cum/Hr) – and DG backup. With minimum 2 Nos of silo (100MT each) per batching plant.	1 nos to be commissioned Within 45 days, 2 nd by 75 days and 3 rd by 105 days
B3	Suitable capacity tyre mounted crane – 1 nos for each NDCT	As per requirement at site
B4	Tower crane of suitable capacity for height of approx. 200m and bottom radius 75m along with operator and necessary spares – 1 nos for each NDCT	Within 90 days from commencement of work at site
B5	Jump form for shell concreting along with all accessories e.g. required no. of jacks (including spare jacks), power packs, ropes, safety accessories, etc. all complete required for smooth operation of jump form – 1 set for each NDCT	As per requirement at site
B6	Suitable passenger lift cabin for carrying (min 8 passengers) along with all accessories – 1nos for each NDCT	To be arranged at site before completion of work of shell upto existing ground level

TECHNICAL CONDITIONS OF CONTRACT (TCC)

B7	4 nos. concrete pump(60 cum/ hr min capacity & lift 90M)/ concrete boom placer of 36m boom length (as applicable).	1 No within 45 days and balance as per BHEL requirement at site.
B8	4 nos. transit mixer (5/6 M3 capacity) with standby 2 nos.	2 no's within 45 days. Balance progressively as per site requirement.
	Other T&Ps	Mobilizing time from the date of start of work
B9	3 No. JCB	2 no. within 30 days and bal. as per site requirement.
B10	6 nos. dumper (Min 15 cum each)	2 nos. Within 20 days. 2 nos. within 45 days. Balance as per site requirement.
B11	4 nos. diesel Mixer machine of 0.5 cum capacity	As per requirement at site
B12	2 nos. self-priming dewatering pump 5 HP (diesel)	Within 20 days.
B13	2 nos. self-priming dewatering pump 5 HP (electric)	Within 30 days
B14	8 nos. curing pump – 1.5 /2 HP (pump for curing at heights)	Within 60 days.
B15	6 nos. reinforcement bending machine	3 nos. within 20 days, 3 nos. within 45 days
B16	1 no. Vibromax (earth compactor)	As per site requirement.
B17	6 nos. reinforcement cutting machine	3 nos. within 20 days, 3 nos. within 45 days
B18	Welding rectifiers – 6nos for piping erection	As per requirement at site
B19	8 sets of raker column steel shuttering – for each NDCT	As per requirement at site
B20	MS scaffolding pipe / ACROW SPAN	As per requirement at site
B21	Welding machine (submerged arc) – 5 nos	As per requirement at site
B22	1 nos. power driven earth rammer (Roller Type 1/2 T)	As per requirement at site
B23	Civil laboratory equipment's as per list in Sl 1.4.4.2 with temporary building one AC lab size 4.5mtrx6mtr and 1 non AC lab 4.5 mtrx4.5 mtr.	Within 55 days.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

B24	Optical/laser plumb – 3 nos for each NDCT	Before start of shell concreting
B25	2 no total station with adequate arrangement for Surveyors.	1 no. Within 15 days. and balance progressively as per requirement
B26	2 no theodolite 1 second accuracy	1 no. within 15 days. and balance progressively as per requirement
B27	3 no's auto level & staff + 2 no's as required	2 nos. Within 15 days. And balance as per requirement.
B28	300 no's concrete cube moulds	150 nos within 30 days and balance progressively as per requirement
B29	Adequate no. of small trucks 2T/5T for shifting of reinforcement/cement/shuttering etc. within site	As per requirement at site
B30	3 nos. drinking water tank – 5000 lit.	1 nos. Within 30 days. Balance as per site requirement.
B31	3 nos. mobile toilet blocks for labour use.	1 no's within 30 days balance within 75 days.
B32	1 nos. truck mounted 125 KVA DG set	1 no. within 30 days
B33	Construction power cable	As per requirement at site
B34	Construction water Pipeline	As per requirement at site
B35	1 nos ultra-sonography testing machine	As per requirement at site
B36	Concrete vibrator with adequate needle (Minimum 30 nos diesel/electric)	6Nos (at least 3nos. diesel driven) within 45 Days. Balance as per site requirement.
B37	Portable fire extinguishers as below: Soda acid – 10 sets. Dry chemical powder – 10 sets CO2 – 10 sets. Water & sand bucket (4 buckets in one stand) – 10 sets. Fire hose with nozzle (50 M length) – 5 sets.	25% within 30 days and balance progressively within 90 days.
B38	1 no. compression testing machine (200 T cap)	1 Nos. within 30 days
B39	3 Nos. Multi stage high lift water pump (for curing) (lifting height 210 metres). One shall be working and other shall be stand by.	Before of start of NDCT shell

TECHNICAL CONDITIONS OF CONTRACT (TCC)

B40	Power winch -2.5 T – 3 nos. for Internal / External Finishing as applicable	As per requirement at site
B41	Walky Talky – 9 Nos	As per requirement at site

Note:

1. T&P shown in the above mentioned list is suggestive requirement considering parallel working in all areas. However, mobilization schedule as mutually agreed at site for major T&Ps, have to be adhered to. Numbers/ time of requirement will be reviewed time to time at site and contractor will provide required T&P/ equipment's to ensure completion of entire work within schedule/target date of completion without any additional financial implication to BHEL. Vendor shall give advance intimation & certification regarding capacity etc. prior to dispatch of heavy equipment's. Also on completion of the respective activity, demobilization of T&P in total or in part can be done with the due approval of engineer in charge. Retaining of the T&P's during the contract period will be mutually agreed in line with construction requirement.
2. All T&P and all IMTEs, which are required for successful and timely execution of the work covered within the scope of this tender, shall be arranged and provided by the contractor at his own cost in working condition.
3. In the event of non-mobilization of any T&P by the successful bidder and as a result progress of work suffered, BHEL reserves the right to engage required T&P on hire and deduct suitable amount from the dues of the bidder.
4. In the event of need of change of type of any of major T&Ps, approval shall be taken from BHEL Engineer in-charge prior to mobilization. The decision of Number of T&P required due to replacing the enlisted T&P as per above table, shall be taken after analyzing the production capacity and suitability of both the T&Ps.
5. Clause no. 1.6.1.1 of this specification may please be referred for date of start of work..

PACKAGE-2

Sr No	Major T&P	Mobilizing time from the date of start of work
B1	2 No. Poclain CK90 excavator	1 no. within 20 days, 1 No within 45 days and balance in a progressive manner depending up on the requirement.

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B2	2 no. automatic concrete batching plant with printing facility (30 Cum/Hr) – and DG backup. With minimum 2 Nos of silo (100MT each) per batching plant.	1 nos to be commissioned Within 45 days and 2 nd by 75 days
B3	Suitable capacity tyre mounted crane – 1 nos for each NDCT	As per requirement at site
B4	Tower crane of suitable capacity for height of approx. 200m and bottom radius 75m along with operator and necessary spares – 1 nos for each NDCT	Within 90 days from commencement of work at site
B5	Jump form for shell concreting along with all accessories e.g. required no. of jacks (including spare jacks), power packs, ropes, safety accessories, etc. all complete required for smooth operation of jump form – 1 set for each NDCT	As per requirement at site
B6	Suitable passenger lift cabin for carrying (min 8 passengers) along with all accessories – 1nos for each NDCT	To be arranged at site before completion of work of shell upto existing ground level
B7	4 nos. concrete pump(60 cum/ hr min capacity & lift 90M)/ concrete boom placer of 36m boom length (as applicable).	1 No within 45 days and balance as per BHEL requirement at site.
B8	4 nos. transit mixer (5/6 M3 capacity) with standby 2 nos.	2 no's within 45 days. Balance progressively as per site requirement.
	Other T&Ps	Mobilizing time from the date of start of work
B9	2 No. JCB	2 no. within 30 days
B10	4 nos. dumper (Min 15 cum each)	2 nos. Within 20 days. 2 nos. within 45 days.
B11	4 nos. diesel Mixer machine of 0.5 cum capacity	As per requirement at site
B12	2 nos. self-priming dewatering pump 5 HP (diesel)	Within 20 days.
B13	2 nos. self-priming dewatering pump 5 HP (electric)	Within 30 days

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B14	8 nos. curing pump – 1.5 /2 HP (pump for curing at heights)	Within 60 days.
B15	6 nos. reinforcement bending machine	3 nos. within 20 days, 3 nos. within 45 days
B16	1 no. Vibromax (earth compactor)	as per site requirement.
B17	6 nos. reinforcement cutting machine	3 nos. within 20 days, 3 nos. within 45 days
B18	Welding rectifiers – 5nos for piping erection	As per requirement at site
B19	8 sets of raker column steel shuttering – for each NDCT	As per requirement at site
B20	MS scaffolding pipe / ACROW SPAN	As per requirement at site
B21	Welding machine (submerged arc) – 5 nos	As per requirement at site
B22	1 nos. power driven earth rammer (Roller Type 1/2 T)	As per requirement at site
B23	Civil laboratory equipment's as per list in SI 1.4.4.2 with temporary building one AC lab size 4.5mtrx6mtr and 1 non AC lab 4.5 mtrx4.5 mtr.	Within 55 days.
B24	Optical/laser plumb – 3 nos for each NDCT	Before start of shell concreting
B25	2 no total station with adequate arrangement for Surveyors.	1 no. Within 15 days. and balance progressively as per requirement
B26	2 no theodolite 1 second accuracy	1 no. within 15 days. and balance progressively as per requirement
B27	3 no's auto level & staff + 2 no's as required	2 nos. Within 15 days. And balance as per requirement.
B28	250 no's concrete cube moulds	150 nos within 30 days and balance progressively as per requirement
B29	Adequate no. of small trucks 2T/5T for shifting of reinforcement/cement/shuttering etc. within site	As per requirement at site
B30	2 nos. drinking water tank – 5000 lit.	1 nos. Within 30 days. Balance as per site requirement.
B31	2 nos. mobile toilet blocks for labour use.	1 no's within 30 days balance within 75 days.
B32	1 nos. truck mounted 125 KVA DG set	1 no. within 30 days
B33	Construction power cable	As per requirement at site

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B34	Construction water Pipeline	As per requirement at site
B35	1 nos ultra-sonography testing machine	As per requirement at site
B36	Concrete vibrator with adequate needle (Minimum 30 nos diesel/electric)	6Nos (at least 3nos. diesel driven) within 45 Days. Balance as per site requirement.
B37	Portable fire extinguishers as below: Soda acid – 10 sets. Dry chemical powder – 10 sets CO2 – 10 sets. Water & sand bucket (4 buckets in one stand) – 10 sets. Fire hose with nozzle (50 M length) – 5 sets.	25% within 30 days and balance progressively within 90 days.
B38	1 no. compression testing machine (200 T cap)	1 Nos. within 30 days
B39	2 Nos. Multi stage high lift water pump (for curing) (lifting height 210 metres). One shall be working and other shall be stand by.	Before of start of NDCT shell
B40	Power winch -2.5 T – 2 nos. for Internal / External Finishing as applicable	As per requirement at site
B41	Walky Talky – 6 Nos	As per requirement at site

Note:

- 1 T&P shown in the above mentioned list is suggestive requirement considering parallel working in all areas. However, mobilization schedule as mutually agreed at site for major T&Ps, have to be adhered to. Numbers/ time of requirement will be reviewed time to time at site and contractor will provide required T&P/ equipment's to ensure completion of entire work within schedule/target date of completion without any additional financial implication to BHEL. Vendor shall give advance intimation & certification regarding capacity etc. prior to dispatch of heavy equipment's. Also on completion of the respective activity, demobilization of T&P in total or in part can be done with the due approval of engineer in charge. Retaining of the T&P's during the contract period will be mutually agreed in line with construction requirement.
- 2 All T&P and all IMTEs, which are required for successful and timely execution of the work covered within the scope of this tender, shall be arranged and provided by the contractor at his own cost in working condition.

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- 3 In the event of non-mobilization of any T&P by the successful bidder and as a result progress of work suffered, BHEL reserves the right to engage required T&P on hire and deduct suitable amount from the dues of the bidder.
- 4 In the event of need of change of type of any of major T&Ps, approval shall be taken from BHEL Engineer in-charge prior to mobilization. The decision of Number of T&P required due to replacing the enlisted T&P as per above table, shall be taken after analyzing the production capacity and suitability of both the T&Ps.
- 5 Clause no. 1.6.1.1 of this specification may please be referred for date of start of work.

1.4.3 In addition to the above, any other tools and plants required for execution of the above work are in contractor's scope.

1.4.4 The Bidder shall establish laboratory arrangements or get the materials tested through approved national accredited laboratory and submit the reports for approval of BHEL/ Customer:

1.4.4.1 The laboratory must have qualified technicians to carry out all tests and must be adequately equipped to ensure that all necessary testing work can be carried out in compliance with the standards.

1.4.4.2 Field and laboratory testing procedures for materials follow Indian standard specifications with necessary equipment's like as given in table below

CONCRETE TESTING EQUIPMENT				
SL NO.	NAME OF TEST	NAME OF EQUIPMENT	SIZE OF EQUIPMENT	IS REF.
1	Initial & final setting time, Consistency of cement	Vicat Apparatus with desk pot	Standard	IS 5513
2	Shrinkage of cement, Auto Clave Test	Le Chatelier's apparatus Auto Clave Equipment	Standard	IS 5514
3	Abrasion value test	Los Angles Abrasion testing machine	Standard	IS 2386
4	Aggregate Impact value test	Aggregate Impact value testing machine with blow counter	Standard	IS 9377
5	Aggregate crushing value test	Crushing value apparatus	Standard	IS 2386
6	Flakiness index	Thickness gauge for measuring flakiness index	Standard	IS 2386
7	Elongation Index	Elongation gauge	Standard	IS 2386

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8	Bulk density, voids and bulking apparatus	Measuring cylinders	3, 5,10 & 15 liters cylinders	
9	Workability of concrete	Slump cone	Standard, at least 04 no's	IS 456
10	Specific gravity of aggregates	Pycnometer	Standard, at least 02 no's	IS 383
11	Cement mortar cube vibrating	Motorised vibration machine for cement testing	Standard	IS 4031
12	Course aggregate Sieve analysis (Concrete & Road Works)	Sieve set	450mm dia GI Frames Size: 125 mm, 90 mm, 75 mm, 63 mm, 53 mm, 40 mm, 20 mm, 16 mm, 12.5 mm, 10 mm, 4.75 mm, Pan and cover	IS 383
13	Fine aggregate sieve analysis	Sieve set	200 mm dia Brass sieves; Size 4.75 mm, 2.36 mm, 1.18 mm 600 micron, 300 micron, 150 micron, 75 micron, 75 micron, Pan and cover	IS 383
14	Sieve Shaker	Motorized Sieve shaker	Mfg. Catalogue	
15	Silt content check	Sand silt content beaker	Standard	

1.4.5 Contractor shall have at all times experienced operators and technicians for routine and breakdown maintenance of the equipment. Any delay in rectification of defects will warrant BHEL rectifying the defect and charging the cost to the contractor

1.4.6 The area and infrastructure development of the work area are to be carried out by the customer. However, in construction projects of this magnitude all the areas / approaches might not be ready. In such cases consolidation of ground and arrangement of sleepers / sand bag filling etc for safe operation / movement of equipment including cranes / trailers etc shall be the responsibility of the contractor at his cost. No compensation on this account shall be payable.

1.4.7 In case the contractor fails to provide any T&P which is in the scope of contractor and if BHEL provides such T&P available with BHEL, hire charges prevailing (as

TECHNICAL CONDITIONS OF CONTRACT (TCC)

per BHEL norms) as on that day will be recovered from the contractor as per the prevailing BHEL Corporate Crane hire charges (may vary from time to time). Corresponding pages of Corporate Crane hire charges are enclosed in Chapter 2 of part II of Technical Conditions of Contract (Volume-I Book-I). This may get revised further as per the BHEL corporate guidelines. However, prevailing rates as on date of execution may be applicable

- 1.4.8 Crane operators deployed by the contractor shall be tested by BHEL before they are allowed to operate the cranes
- 1.4.9 In case, cement is issued through bulkers being supplied from manufacturer /stockiest, the same shall be emptied in cement silos of batching plant and necessary assistance shall be provided by contractor. Contractor to note that batching plant being established at site shall have cement silos of 100 MT capacities each as mentioned in clause 1.4.2.B- list of Tools & Plants to be deployed by the contractor.

VOLUME-IA PART-I CHAPTER – V

1.5 T&Ps AND MMEs TO BE DEPLOYED BY BHEL ON SHARING BASIS

- 1.5.1 BHEL will not provide any T & Ps for this scope of work
- 1.5.2 All the tools and plants required for execution of the above work are in contractor's scope.
- 1.5.3 In case if the contractor fails to provide T&P and other equipment's, BHEL will arrange for the same and the cost will be recovered from the contractor's bill with BHEL overheads, as applicable from time to time which may vary during contract period.

VOLUME-IA PART-I CHAPTER - VI

1.6 TIME SCHEDULE

1.6.1 TIME SCHEDULE

1.6.1.1 The commencement of work at site shall be mutually agreed date between bidder and BHEL to start the work.

1.6.1.2 The entire works of the cooling towers including green belt area (as applicable) as detailed in the Tender Specification shall be completed within 30 (Thirty) months for both the packages from the date of commencement of work for both the packages.

1.6.1.2.1 Package -1

1.6.1.2.1.1 NDCT-1 - 28 months

1.6.1.2.1.2 NDCT-3 - 28 months

1.6.1.2.1.3 NDCT-5 - 28 months

1.6.1.2.1.4 Final bill & contract closure: 30 months

1.6.1.2.2 Package – 2

1.6.1.2.2.1 NDCT-2 - 28 months

1.6.1.2.2.2 NDCT-4 - 28 months

1.6.1.2.2.3 Final bill & contract closure: 30 months

1.6.1.3 During the total period of contract, the contractor has to carry out the activities in a phased manner as required by BHEL and the program of milestone events.

1.6.1.4 The contractor is required to refer Form 15 in Volume 1- BOOK 2 for all the instructions to be taken immediately after receipt of LOI.

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1.6.2 **MOBILISATION**

- 1.6.2.1 The Contractor has to subsequently augment his resources in such a manner to achieve the COMPLETION SCHEDULES;
- 1.6.2.2 The above time allowed for completion of work including Sundays and Holidays is from the date of commencement of work. Detailed program to be prepared by the tenderer taking in to consideration of the COMPLETION SCHEDULES /site decision on drawings flow (latest) and submitted for BHEL's approval.
- 1.6.3 In order to meet above schedule in general, and any other intermediate targets set, to meet customer / project schedule requirements, contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL.
- 1.6.4 In case the project is to be advanced, the civil works in the scope of the contractor is to be advanced to meet the project requirement. No extra payment whatsoever shall be paid on this account.

1.6.5 **SUBMISSION OF L3 SCHEDULE**

- 1.6.5.1 The contractor shall submit and a detailed area/structure wise L3 schedule within 7 days in consultation with BHEL based on the tentative schedule provided as per the clause 1.6.7. The detailed L3 schedule shall be approved by BHEL and same shall be implemented. Bidder shall submit L3 schedule in MS Projects to meet the agreed project schedule covering various mile stone activities and their split up details such as construction, procurement of materials, fabrication & erection activities. This schedule shall also clearly indicate the interface facilities/inputs to be shall commence from the date of completion of the whole of the work in each package, certified by the Engineer.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

1.6.6 **GUARANTEE PERIOD**

The Guarantee period shall be as mentioned below:

- 1.6.6.1 as stipulated in General conditions of contract (clause no. 2.24 "PERFORMANCE GUARANTEE FOR WORKMANSHIP")
or
- 1.6.6.2 18 calendar months from the date of completion of supplies
or
- 1.6.6.3 12 calendar months from the date of satisfactory commissioning of the package,
whichever is later.
- 1.6.6.4 Seller/ contractor's liability in respect of any complaints, defects and claims shall not be limited to supply and installation of replaced parts free of charge, or repair of defective parts to the extent that such replacements are attributable to or arise from faulty workmanship, material or design, in the manufacture, of the stores but at the option of purchaser, to the payment of the value, expenditure and damages as mentioned hereafter, provided defects on being discovered are brought to the notice of the seller/ contractor within a period of three (3) months from the date of expiry of the guarantee period.

1.6.7 **CIVIL WORKS SCHEDULE FOR 5X800MW YADADRI POWER PROJECT**

The schedule for civil works is as given below.

<u>TENTATIVE PLAN FOR NDCT OF YADADRI FOR ALL NDCTs</u>		
SI.No	Area of work	Completion from the date of commencement of civil work
1	RCC for ring raft	Progressively by 3 rd Month
2	Basin wall & pedestals	Progressively by 5 th month
3	Basin floor	Progressively by 7 th month
4	Tower crane erection	Progressively by 4 th Month
5	Completion of Raker column for all NDCTs	Progressively by 8 th month
6	RCC shell	Progressively up to 18 th month
7	Grillage structure	Progressively by 19 th month
8	RCC for Cold water channel	Progressively by 19 th month
9	RCC hot water duct	Progressively by 19 th month
10	Completion of precast beams	Progressively by 20 th month

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11	Completion of fills	Progressively by 21 st month
12	Completion of hot water inlet pipes	Progressively by 21 st month
13	All electrical works, staircase, internal painting, cage ladder erection	Progressively by 22 nd month
14	Readiness for unit sync (readiness of half basin)	Progressively by 22 nd month
15	Readiness of complete cooling tower including inspection, testing	Progressively by 28 th months
16	Entire finishing and handing over, final bill & reconciliation	Progressively by 30 th month
17	PG test	As per BHEL readiness and instruction

1.6.8 Intermediate Milestones for Cooling tower (NDCT)

<u>S No</u>	<u>Description</u>	<u>Completion month from the contractual date of start of the work</u>	<u>Intermediate Milestone</u>
Package 1- Unit 1, 3 & 5			
1	Completion of Raker column for all NDCTs TG Deck deckESP	8th Month	M1
2	Completion of RCC shell for all	18th month	M2
Package 2- unit 2 & 4			
1	Completion of Raker column for all NDCTs TG Deck deckESP	8th Month	M1
2	Completion of RCC shell for all	18th month	M2

NOTE: For Penalty for Intermediate Milestones, please refer Sl. No.:7, Part-II, Chapter-1 of Technical Conditions of Contract (Volume 1A of Volume-I Book-I)

1.6.9 RECORDS TO BE MAINTAINED AT SITE:

- 1.6.9.1 Record of Quantity of FREE/Chargeable items issued by BHEL must be maintained during contract execution. Also reconciliation statement to be prepared at regular intervals.
- 1.6.9.2 The under mentioned Records/ Log-books/ Registers applicable to be maintained.
 - 1.6.9.2.1 Hindrance Register.
 - 1.6.9.2.2 Site Order Book.
 - 1.6.9.2.3 Test Check of measurements.

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- 1.6.9.2.4 Cement Supply and Consumption Daily Register
- 1.6.9.2.5 Records of Test reports of Field tests.
- 1.6.9.2.6 Records of manufacture's test certificates.
- 1.6.9.2.7 Records of disposal of scraps generated during and after the work completion.
- 1.6.10 The above schedule is tentative. In case the project is to be advanced, the civil works in the scope of the contractor is to be advanced to meet the project requirement. No extra payment whatsoever shall be paid on this account
- 1.6.11 The above time allowed for completion of work including Sundays and Holidays is from the date of commencement of work. Detailed program to be prepared by the bidder taking in to consideration of the COMPLETION SCHEDULES / site decision on drawings flow (latest) and submitted for BHEL's approval
- 1.6.12 In order to meet the above schedule in general, and any other intermediate targets set, to meet customer/ project schedule requirements, Contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL Engineer
- 1.6.13 The bidder must submit a detail schedule (area wise) for completion of work to meet civil work schedule given in CLAUSE 6.7 within 15 days from the date of issue of LOI
- 1.6.14 The major activities as mentioned below against the work schedule given in clause No.1.6.7 are to be indicated in detailed schedule which will be prepared by the bidder.

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1.7 TERMS OF PAYMENT

1.7.1 Secured Advance

Not applicable

1.7.2 Advance for Mobilization

1.7.2.1 Interest bearing advance for mobilization, limited to 5% of the contract value will be paid against submission of bank guarantee of at least 110% of the advance valid for the contract period, which will be recovered from the first running bill onwards. The advance for mobilization shall be paid as under

1.7.2.2 2% of contract value after receipt of initial security deposit and additional security deposit as applicable (if any), consortium SD as per relevant clauses in the GCC/TCC along with unqualified acceptance of detailed letter of intent.

1.7.2.3 1.5% of the contract value on completion of site mobilization of machinery & T&Ps (per NDCT) as given below and on certification by site in-charge for compliance (subjected to compliance of clause no. 1.7.2.2):

PACKAGE-1

1. JCB – 2nos
2. Poclain CK90 excavator – 1nos
3. Batching plant – 30 cum/hr capacity – 1 no. with 2 nos silo (100MT each)
4. Transit mixers – 2 nos
5. Concrete pumps – 1 nos

PACKAGE-2

1. JCB – 2nos
2. Poclain CK90 excavator – 1nos
3. Batching plant – 30 cum/hr capacity – 1 no. with 2 nos silo (100MT each)
4. Transit mixers – 2 nos
5. Concrete pumps – 1 nos

1.7.2.4 1.5% of contract value on completion of site mobilization of machinery and T&Ps as given below in addition to the above, and on certification by site in-charge for compliance:

PACKAGE-1

1. Poclain – 2 nos
2. Batching plant – 30 cum/ hr capacity – 1 no. with 2 nos silo (100MT capacity each)
3. Transit mixer – 4 nos
4. Concrete pump – 2 nos

PACKAGE-2

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1. Poclain – 1 nos
2. Batching plant – 30 cum/ hr capacity – 1 no. with 2 nos silo (100MT capacity each)
3. Transit mixer – 3 nos
4. Concrete pump – 1 nos

1.7.3 **Interim Payment**

- 1.7.3.1 Interim bills in the form of monthly running bills prepared by the contractor in soft as well as Hard copies shall be based on the quantities executed and measured.
- 1.7.3.2 90% item rate shall be released after completion of works certification by Engineer in charge.
- 1.7.3.3 5% of the item rate shall be released after submission of the quality check formats as per the quality plan for the quantum of work billed and duly certified by engineer.
- 1.7.3.4 Further, 5% can only be released after successful completion of commissioning and handing over of cooling tower.
- 1.7.3.5 All admissible deductions shall be made from the above 90% value
- 1.7.3.6 BHEL Site Engineer, at discretion, may operate the part rate of the items in line with GCC clause no. 2.23.1 (v). Payment for supply portion (subjected to approval of Engineer In-Charge) shall be made only after receipt of material at site

1.7.4 **Royalty/Seigniorage charges**

- 1.7.4.1 Royalty/seigniorage charges (If any) for excavation in side plant premises as applicable as per Govt of Telangana shall be reimbursable to the bidder by BHEL for the quantum of earth work done on submission of necessary proof of payments as required by M/s TSGENCO for reimbursement

1.7.5 **METHOD OF MEASUREMENT**

Mode of measurement shall be as per relevant clauses of the relevant IS 1200 in conjunction of IS code 3385 shall be adopted. In case the same is also not available, the standard procedure adopted in CPWD shall be adopted. In case the same is also not available in CPWD, the measurement of the work done will be based on the mutual agreement between BHEL and contractor. In all the above cases, the interpretation of BHEL will be final and binding to the contractor. Measurement guidelines as a ready reference is also available in the technical specification.

- 1.7.6 NO CLAIM WHAT SO EVER MAY BE, WILL BE ENTERTAINED UNDER THIS CONTRACT, AFTER DULY SIGNING THE FINAL BILL ALONG WITH MEASURMENT BOOKS AND ACCEPTED BY BHEL.

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Note: Also refer Volume 1A Part II Chapter-1 "CORRECTIONS / REVISIONS IN SPECIAL CONDITIONS OF CONTRACT, GENERAL CONDITIONS OF CONTRACT AND FORMS & PROCEDURES" of this book for PVC, ORC, Retention Amount and other Clauses.

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VOLUME-IA PART-I CHAPTER - VIII

TAXES AND OTHER DUTIES

1.8.1 Goods and service Tax (GST) & Cess

1.8.1.1 The successful bidder shall furnish proof of GST registration with GSTN Portal in the State in which the Project is being executed, covering the services under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by the successful bidder on BHEL for this project/ work.

1.8.1.2 Contractor's price/rates shall be exclusive of GST & Cess (if applicable) (herein after termed as GST). Contractor shall submit to BHEL the GST compliant tax invoice/debit note/revised tax invoice on the basis of which BHEL will claim the input tax credit in its return. Since this is a works contract, the applicable rate shall be @ 18% GST, as applicable presently

1.8.1.3 Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules wherein the 'Bill To' details will as below:

BHEL GSTN - 36AAACB4146P1ZG

NAME - BHARAT HEAVY ELECTRICALS LIMITED

ADDRESS - Yadadri Thermal Power Station, 5X800 MW (Coal based), Veerlapalem village, Dameracherla Mandal, Nalgonda District, Telangana, India

1.8.1.4 GST charged in the tax invoice/debit note/revised tax invoice by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return.

1.8.1.5 In case BHEL has to incur any liability (like interest / penalty etc.) due to denial/reversal / delay of input tax credit in respect of the invoice submitted by the contractor, for the reasons attributable to the contractor, the same shall be recovered from the contractor.

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- 1.8.1.6 Further, In case BHEL is deprived of the Input tax credit due to any reason attributable to contractor, the same shall not be paid or Recovered if already paid to the contractor.
- 1.8.1.7 Tax invoice/debit Note/revised tax invoice shall contain all such particulars as prescribed in GST law and comply to the timelines for issue of the same. Invoices shall be submitted on time to the concerned BHEL Engineer In Charge.
- 1.8.1.8 TDS under GST (if/ as & when applicable) shall be deducted at prevailing rates on gross invoice value from the running bills.
- 1.8.1.9 E-way bills / Transit passes / Road Permits, if required for materials / T&P etc., bought into the project site is to be arranged by the Contractor only.
- 1.8.1.10 BHEL shall not reimburse any amounts towards any interest / penalty etc., incurred by contractor. Any additional claim at a later date due to issues such as wrong rates / wrong classification by contractor shall not be paid by BHEL.

1.8.2 All taxes and duty other than GST & Cess

The contractor shall pay all (save the specific exclusion viz GST & Cess) taxes, fees, license charges, deposits, duties, tools, royalty, commissions, Stamp Duties, or other charges / levies, which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract and the same shall not be reimbursed by BHEL. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.

1.8.3 Statutory Variations

Statutory variations are applicable under the GST Acts, against production of proof. The changes implemented by the Central / State Government during the tenure of the contract viz. increase / decrease in the rate of taxes, applicability, etc. and its impact on upward revision / downward revision are to be suitably paid/ adjusted from the date of respective variation. The bidder shall give the benefit of downward revision in favour of BHEL. No other variations shall be allowed during the tenure of the contract.

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1.8.4 New Taxes/Levies

In case Government imposes any new levy / tax after submission of bid during the tenure of the contract, BHEL shall reimburse the same at actual on submission of documentary proof of payment subject to the satisfaction of BHEL that such new levy / tax is applicable to this contract.

1.8.5 Direct Tax

BHEL shall not be liable towards Income Tax of whatever nature including variations thereof arising out of this contract as well as tax liability of the bidder and their personnel. Deduction of tax at source at the prevailing rates shall be effected by BHEL before release of payment as a statutory obligation, unless exemption certificate is produced by the bidder. TDS certificate will be issued by BHEL as per the provisions of Income Tax Act.

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VOLUME-IA PART-I CHAPTER IX

BILL OF QUANTITY

- 1.9.1 BOQ will be submitted through online tendering system.
- 1.9.2 Bidders shall only quote “Total amount” in the format given in PART-B of the price bid. Any other elsewhere in the price bid shall be treated as Null and Void.
- 1.9.3 The above mentioned “Total amount” is for the entire Bill of Quantity (BOQ) given in Part-C of the Price bid.
- 1.9.4 BHEL has the pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the “Total amount” in Part-C.
- 1.9.5 Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.
- 1.9.6 Based on the quantities of individual item and the amount arrived in SI No. 1.9.5 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
- 1.9.7 Bidder to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per SI No. 1.9.6 above.
- 1.9.8 The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). The derived item rates (as mentioned above) for individual items shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value is within the limit of Minus (-) 15% of awarded contract value.
- 1.9.9 Quantity provided in this BOQ is only for one NDCT (Natural draught cooling tower). Thus, bidder should quote price only for one NDCT.
- 1.9.10 Total price for package-1 shall be considered as 3 times of the quoted price and for package-2 it shall be considered as 2 times of the quoted price.

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VOLUME-IA PART-I CHAPTER-X

GENERAL

The scope of the work will comprise of but not limited to the following:

(All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

- 1.10.1 Bidders are requested to furnish the following at PSSR-HQ
 - i) Security Deposit and additional Security Deposit.
 - ii) Unqualified Acceptance for Detailed LOI / Work Order.
 - iii) Rs.100/- Stamp Paper for preparation of Contract Agreement.
 - iv) Option (whether a or b of said clause) exercised by towards Performance Security Deposit for the subject contract as per Sl. No. 16 of Volume IA Part II Chapter 1 of TCC.
- 1.10.2 Bidders are requested to furnish the proof of documents for the following at the respective PSSR- Site
 - i) PF Regn No.
 - ii) Labour License No.
 - iii) Workmen Insurance Policy No.
- 1.10.3 **In addition to the clause 2.8 of General Conditions of Contract (Volume-1C of Book-II) the contractor shall comply with the following.**
- 1.10.3.1 **BOCW Act & BOCW Welfare Cess Act**
- 1.10.3.1.1 The Contractor should Register their Establishment under BOCW Act 1996 read with rules 1998 by submitting Form I (Application for Registration of Establishment) and Form IV (Notice Of Commencement / Completion of Building other Construction Work) to the respective Labour Authorities i.e.,
 - a) Assistant Labour Commissioner (Central) in respect of the project premises which is under the purview of Central Govt.-NTPC, NTPL etc.
 - b) Appropriate State authorities in respect of the project premises which is under the purview of State Govt.
- 1.10.3.1.2 The Contractor should comply with the provisions of BOCW Welfare Cess Act 1996 in respect of the work awarded to them by BHEL.
- 1.10.3.1.3 The contractor should ensure compliance regarding Registration of Building Workers as Beneficiaries, Hours of work, welfare measures and other conditions of service with particular reference to Safety and Health measures like Safety Officers, safety committee, issue of Personal protective equipments, canteen, rest room, drinking water, Toilets, ambulance, first aid centre etc.
- 1.10.3.1.4 The contractor irrespective of their nature of work and manpower (Civil, Mechanical, Electrical works etc) should register their establishment under BOCW Act 1996 and comply with BOCW Welfare Cess Act 1996.

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1.10.3.1.5 Contractor shall make remittance of the BOCW cess as per the Act **in consultation with BHEL** as per the rates in force (presently 1%) BHEL shall reimburse the same upon production of documentary evidence. However, BHEL shall not reimburse the Fee paid towards the registration of establishment, fees paid towards registration of Beneficiaries and Contributions of Beneficiaries remitted.

1.10.3.1.6 Non-compliance to provisions of the BOCW Act and BOCW Welfare Cess Act is not acceptable. In case of any non-compliance, BHEL reserves the right to withhold any sum it deems fit. Only upon total compliance to the BOCW Act and also discharge of total payment of Cess under the BOCW Cess Act by the Contractor, BHEL shall consider refund of the amounts.

1.10.3.2 **PROVIDENT FUND**

1.10.3.2.1 The contractor is required to extend the benefit of Provident Fund to the labour employed by you in connection with this contract as per the Employees Provident Fund and Miscellaneous Provisions Act 1952. For due implementation of the same, you are hereby required to get yourself registered with the Provident Fund authorities for the purpose of reconciliation of PF dues and furnish to us the code number allotted to you by the Provident Fund authorities within one month from the date of issue of the letter of intent. In case you are exempted from such remittance an attested copy of authority for such exemption is to be furnished. Please note that in the event of your failure to comply with the provisions of said Act, if recoveries therefore are enforced from payments due to us by the customer or paid to statutory authorities by us, such amount will be recovered from payments due to you.

1.10.3.2.2 The final bill amount would be released only on production of clearance certificate from PF / ESI and labour authorities as applicable.

1.10.3.3 **OTHER STATUTORY REQUIREMENTS**

1.10.3.3.1 The Contractor shall submit a copy of Labour License obtained from the Licensing Officer (Form VI) u/r25 read with u/s 12 of Contract Labour (R&A) Act 1970 & rules and Valid WC Insurance copy or ESI Code (if applicable) and PF code no. along with the first running bill.

1.10.3.3.2 The contractor shall submit monthly running bills along with the copies of monthly wages (of the preceding month) u/r78(1)(a)(1) of Contract Labour Rules, copies of monthly return of PF contribution with remittance Challans under Employees Provident Fund Act 1952 and copy of renewed WC Insurance policy or copies of monthly return of ESI contribution with Challans under ESI Act 1948 (if applicable) in respect of the workmen engaged by them.

1.10.3.3.3 The Contractor should ensure compliance of Sec 21 of Contract Labour (R&A) Act 1970 regarding responsibility for payment of Wages. In case of "Non-compliance of Sec 21 or non-payment of wages" to the workmen

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before the expiry of wage period by the contractor, BHEL will reserve its right to pay the workmen under the orders of Appropriate authority at the risk and cost of the Contractor.

1.10.3.3.4 The Contractor shall submit copies of Final Settlement statement of disbursal of retrenchment benefits on retrenchment of each workmen under ID Act 1948, copies of Form 6-A (Annual Return of PF Contribution) along with copies of PF Contribution Card of each member under PF Act and copies of monthly return on ESI Contribution – Form 6 under ESI Act 1948 (if applicable) to BHEL along with the Final Bill.

1.10.3.3.5 In case of any dispute pending before the appropriate authority under ID Act 1948, WC Act 1923 or ESI Act 1948 and PF Act 1952, BHEL reserve the right to hold such amounts from the final bills of the Contractor which will be released on submission of proof of settlement of issues from the appropriate authority under the act.

1.10.3.3.6 In case of any dispute prolonged / pending before the authority for the reasons not attributable to the contractor, BHEL reserves the right to release the final bill of the contractor on submission of Indemnity bond by the contractor indemnifying BHEL against any claims that may arise at a later date without prejudice to the rights of BHEL.

1.10.3.3.7 **DEPLOYMENT OF SKILLED / SEMI-SKILLED TRADESMEN**
The following clause is applicable in case the contract value / contract price is Rs.Five crores and above.
The contractor shall, at all stages of work deploy skilled / semi-skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute / Industrial Training Institute / National Institute of Construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed / certified by State / Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled / semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer-in-Charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by contractor at the rate of Rs. 100 per such tradesman per day. Decision of Engineer-in-Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding.

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1.10.3.4 RECOVERY OF COMPENSATION PAID TO VICTIM(S) BY BHEL IN CASES OF DEATH/ PERMANENT INCAPACITATION OF PERSON DUE TO AN ACCIDENT DURING THE WORKS

BHEL shall recover the amount of compensation paid to victim(s) by BHEL towards loss of life / permanent disability due to an accident which is attributable to the negligence of contractor, agency or firm or any of its employees as detailed below.

1.10.3.4.1 Victim: Any person who suffers permanent disablement or dies in an accident as defined below.

1.10.3.4.2 Accident: Any death or permanent disability resulting solely and directly from any unintended and unforeseen injurious occurrence caused during the manufacturing / operation and works incidental thereto at BHEL factories/ offices and precincts thereof, project execution, erection and commissioning, services, repairs and maintenance, trouble shooting, serving, overhaul, renovation and retrofitting, trial operation, performance guarantee testing undertaken by the company or during any works /during working at BHEL Units/ Offices/ townships and premises/ Project Sites.

1.10.3.4.3 Compensation in respect of each of the victims:

- (i) In the event of death or **permanent disability** resulting from **Loss of both limbs**: Rs. 10,00,000/- (Rs. Ten Lakh)
- (ii) In the event of **other permanent disability**: Rs. 7,00,000/- (Rs. Seven Lakh)

1.10.3.4.4 Permanent Disablement: A disablement that is classified as a permanent total disablement under the proviso to Section 2 (l) of the Employee's Compensation Act, 1923.

1.10.4 GENERAL

1.10.4.1 Contractor shall execute the work as per sequence and procedure prescribed by BHEL at site. The applicable erection manuals which are available with BHEL site office are to be referred for compliance and guidance before taking up the work. Any rework on this failure to comply with will be to account of contractor only. BHEL engineer, depending upon the availability of materials, fronts etc., will decide the sequence of erection and methodology. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the method of erection adopted in erection of similar jobs in other projects or for any reason whatsoever.

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1.10.4.2 Contractor has to work in close co-ordination with other erection agencies at site. BHEL engineer will co-ordinate area clearance. In a project of such magnitude, it is possible that the area clearance may be less / more at a particular given time. Activities and erection program have to be planned in such a way that the milestones are achieved as per schedule / plans. Contractor shall arrange & augment the resources accordingly.

1.10.4.3 The contractor is strictly prohibited from using BHEL's regular components like angles, channels, beams, plates, pipe / tubes, and handrails etc. for any temporary supporting or scaffolding works or as bed for pre-assembly works. Contractor shall arrange himself all such materials. In case of such misuse of BHEL materials, a sum as determined by BHEL engineer will be recovered from the contractor's bill. The decision of BHEL engineer is final and binding on the contractor.

1.10.4.4 All the works such as cleaning, leveling, aligning, trial assembly, dismantling of certain components for checking and cleaning, surface preparation, fabrication of sheets, tubes and pipes as per general engineering practice and as per BHEL Engineer's instructions at site, cutting, weld depositing, grinding, straightening, chamfering, filing, chipping, drilling, reaming, scrapping, lapping, fitting-up etc., as may be applicable in such erection works and are necessary to complete the work satisfactorily, shall be carried out by the contractor as part of the work within the quoted rate. Major machining work, which is only to be carried out in workshops, will be arranged by BHEL.

1.10.4.5 The work covered under this specification is of highly sophisticated nature, requiring the best quality workmanship, engineering and construction management. The contractor should ensure successful and timely operation of equipment installed. The contractor must have adequate quantity of tools, construction aids, equipments etc., in his possession. He must also have on his rolls adequate trained, qualified and experienced supervisory staff and

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skilled personnel.

- 1.10.4.6 The contractor will be responsible for the safe custody and proper accounting of all materials in connection with the work. If the contractor has drawn materials in excess of design requirements, recoveries will be effected for such excess drawls at the rate prescribed by manufacturing units.
- 1.10.4.7 No member of the already erected structure, platform, pipes, grills, other component and auxiliaries should be cut without specific approval of BHEL engineer.
- 1.10.4.8 No temporary supports shall be welded on the pressure parts of piping. Welding of temporary supports, cleats, etc. on the boiler columns shall be avoided. In case of absolute necessity contractor shall take prior approval from BHEL Engineer. Further, any cutting or alteration of member of the structure of platform or other equipment shall not be done without specific prior approval of BHEL Engineer.
- 1.10.4.9 Contractors shall ensure that all their Staff / Employees are exposed to periodical training programme conducted by qualified agencies / personnel on ISO 9001 – 2015 Standards.
- 1.10.4.10 Contractor has to clear the front, expeditiously and promptly as instructed by BHEL Engineer for other agencies, like piping, Turbine, Generator erection, Cabling, instrumentation, insulation etc., to commence their work from / on the equipments coming under this scope. Sometimes, more than one agencies may have to work in same location. Sometimes it may be required to re-schedule the activities to enable other agencies to commence / continue the work so as to keep the overall project schedule.
- 1.10.4.11 The terminal points decided by BHEL are final and binding on the contractor for deciding the scope of work and effecting the payment for the work done up to the terminals.

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1.10.4.12 For the purpose of planning, contractor shall furnish the estimated requirement of power (month wise) for execution of work in terms of maximum KW demand.

1.10.4.13 If applicable, all boiler, piping layout drawings received from BHEL for pipeline erection to be submitted to Boiler Inspector for approval. After approval of the above drawing, Erection of pipe line to be started. Inspection fee and registration fee as mentioned in Chapter VIII of Special Conditions of contract (Volume-IB in Volume-I Book-II) shall be paid by BHEL.

1.10.4.14 Contractor should obtain the formal statutory clearance from Chief Inspector of Boilers to carry out erection & Welding of piping under IBR purview. Arrangement for the visit of Boiler inspector for field inspection, hydraulic test etc., is in the scope of contractor, and necessary drawing / details only will be given by BHEL.

1.10.4.15 Contractor shall arrange the necessary clearance from statutory authorities like IBR, Electrical Inspectorate, Explosive, etc. including the load test on Hoists/Handling as required for installation of the plant and equipment and render all assistance, service required in this regard.

1.10.4.16 All the necessary certificates and licenses required to carry out this scope of work are to be arranged by the contractor then and there at no extra cost.

1.10.4.17 Contractor shall submit a copy of license to undertake construction / repair of Boilers & Piping issued by Boiler inspectorate before commencement of Pressure Parts / Piping Erection.

1.10.4.18 Crane operators deployed by the contractor shall be tested by BHEL before he is allowed to operate the cranes.

1.10.4.19 The contractor must obtain the signature and permission of the security personnel of the customer for bringing any of their materials inside the site premises. Without the Entry Gate Pass these materials will not be allowed to

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be taken outside.

1.10.4.20 Upon completion of daily work, the contractor shall remove from the vicinity of work all scrap packing materials, rubbish, unused and other materials and deposit them in places to be specified by BHEL Engineer.

1.10.4.21 During the course of erection, if the progress is found unsatisfactory, or if the target dates fixed from time to time for every milestone are to be advanced, or in the opinion of BHEL, if it is found that the skilled workmen like fitters, operators, technicians employed are not sufficient, BHEL will induct required additional workmen to improve the progress and recover all charges incurred on this account including all expenses together with BHEL overheads from contractor's bills.

1.10.4.22 On completion of work, all the temporary buildings, structures, pipe lines, cables etc. shall be dismantled and leveled and debris shall be removed as per instructions of BHEL by the contractor at his cost. In the event of his failure to do so, the expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.

1.10.5 UTILITY POINTS

1.10.5.1 Number of utility points (Service / plant air, service / plant water, service / washing steam, inert gas (N2) etc., shall be indicated in the P & I diagram. Contractor to locate the utility points as advised by site engineer and shall route the piping to these points as per site conditions, and shall submit as built layout with 'BILL OF MATERIAL' to BHEL for approval

1.10.5.2 The utility points shall be located at convenient point to handle and to be terminated with brass / bronze valve with suitable connection for hose pipe

1.10.5.3 DOCUMENTATION

1.10.5.3.1 The following information shall be furnished by the bidder within two weeks of award of contract for purchaser's approval:

- Bar chart covering planned activities at site
- Detailed organization chart
- Details of T&P available with contractors with documents proofs.

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1.10.5.3.2 The following information shall be furnished by the bidder after testing and inspection:
Test certificates of various tests conducted at site. All inspection and test certificates shall be signed by BHEL representative also.

1.10.5.4 **RECORDS TO BE MAINTAINED AT SITE:**

1.10.5.4.1 Record of Quantity of FREE/Chargeable items issued by BHEL must be maintained during contract execution. Also reconciliation statement to be prepared at regular intervals.

1.10.5.4.2 The under mentioned Records/ Log-books/ Registers applicable to be maintained.

- a. Hindrance Register.
- b. Site Order Book.
- c. Test Check of measurements.
- d. Supply and Consumption Daily Register of Cement and Steel
- e. Records of Test reports of Field tests.
- f. Records of manufacture's test certificates.
- g. Records of disposal of scraps generated during and after the work completion.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

VOLUME-IA PART-I CHAPTER -XI

ACCOUNTING OF MATERIALS ISSUE

1.11.0 ACCOUNTING OF MATERIALS ISSUE (APPLICABLE FOR ALL PACKAGES)

The material issued to the contractor by BHEL will be accounted as follows:

1.11.1 ISSUE OF CEMENT

- 1.11.1.1 Cement as received from the manufacturer/ stockiest will be issued free of cost to the contractor. The cement shall be provided normally in bulkers and shall be unloaded in the silos (Adequate numbers of cement silo of cumulative capacity of 200MT per 30CUM batching plant or as required for batching plant mobilized other than the capacity mentioned) to be installed by the bidder nearer to their batching plants. Cement unloading arrangements to silo and required manpower support shall be provided by the successful bidder at his own cost.
- 1.11.1.2 On advance request of the bidder, the cement shall be supplied in 50kg tamper proof sealed Bags for other than RCC works like masonry, flooring works etc. The theoretical weight of each bag of cement for issued purposes will be considered as 50 kg, the contractor shall be accountable for the cement issued to him on this notional weight only. No claim whatsoever will be entertained because of difference between theoretical and actual weight of the bags of cement. The empty cement bags duly accounted for against issue shall be in the custody of the contractor and the same shall be disposed by the contractor as per statutory regulation prevailing in the project.
- 1.11.1.3 The contractor shall submit to the engineer, a statement indicating estimated quantity of cement required during a quarter, at least two months in advance of the quarter. In addition, the contractor shall also furnish the estimated requirement of cement during a month by the third week of the previous month indicating his requirement.
- 1.11.1.3.1 Bidder is responsible for unloading the cement as soon as the arrival of cement, either in silo, if received in bulk or in the weather proof cement storage sheds, if received bags. Bagged cement shall be stored in a weatherproof sheds having dense impervious bituminous or concrete floors which shall be kept swept clean at all times. The storage arrangements shall be fully completed and approved by the owner before any cement is delivered to site. The construction of cement storage sheds as per the requirement of BHEL, unloading of cement bags, stacking properly in the storage sheds,

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removal of the sheds after the completion of the work is in the scope of bidder

1.11.1.3.2 Bidder is responsible for sampling and testing of cement as per Indian Standard/Specification/approved quality plan in the testing laboratory established by the bidder.

1.11.1.3.3 Bidder is responsible for carrying out design mix as per IS 456/10262 Latest revision and specification, using the cement provided by BHEL and submit the design mix proportions for the approval of BHEL/TSGENCO. The design/trial mix shall be carried out time to time on change of brand/type of cement supplied by BHEL and suitable adjustments on the quantity of ingredients (sand, aggregates, admixture) of the concrete to get the required workability and durability, shall be the responsibility of the bidder without any extra cost to BHEL.

1.11.1.3.4 Following shall be limit for the maximum quantity of BHEL issue materials that would be with the contractor at any point of time when work is in progress (excluding what has already been incorporated in the works):

SLNO	ISSUE OF MATERIALS	MAX. QTY IN CONTRACTOR'S STORE
1.	Cement	Requirement of one month

1.11.1.3.5 RETURN OF CEMENT

Sealed cement bags remaining unused and in perfectly good condition at the time of completion or termination of the contract shall be returned promptly, (within 15 days from assessment) if BHEL/ Engineer is satisfied of the physical condition of the cement. Return of such cement to the project stores/ place as identified within the project area by Engineer/ BHEL will not be entitled to handling and incidental charges. Surplus sealed and good conditioned cement bags will be taken back on weighment basis.

1.11.1.3.6 CEMENT CONSUMPTION AND WASTAGE

The theoretical consumption of cement shall be based on the following.

- i. For design mix concrete as per approved design mix.
- ii. For nominal mix concrete work, as per minimum cement as specified or as approved by Engineer-in-charge.

For item of works, where volume mix is permitted in writing by the BHEL, for masonry works, plaster other miscellaneous items, the cement consumption shall be governed by the "Statement of Cement Consumption" attached to the Delhi schedule of Rates of CPWD-DSR- LATEST REVISION unless otherwise specified in the specifications or the drawing of contract or mutually agreed by Engineer-in-charge and contractor.

Actual consumption = Issue – Surplus/ unused quantity of cement returned in

TECHNICAL CONDITIONS OF CONTRACT (TCC)

good condition by contractor to store. (No sweep cement will be taken back by BHEL).

1.11.1.3.6.1 CEMENT WASTAGE

Allowable wastage: One and half percent (+1.5%) of theoretical consumption of cement unless specified otherwise in the technical specification.

For any material issued by BHEL to the contractor free of cost, and which is not accounted by the contractor to BHEL, then recovery for such material shall be effected at penal rates.

SI No	Cement consumption	Basis of issue & penal recovery
C-1	Theoretical consumption (without considering any wastage or loss).	Free
C-2	Actual consumption being Limited to one and half percent (+1.5%) of aforesaid theoretical consumption towards allowable wastage.	Free
C-3	Actual consumption beyond one and half percent (+1.5%) of above (C-1).	Penal rate

1.11.2 ISSUE OF STEEL

The steel shall be issued to the contractor on the following basis:

- (a) Structural Steel : Weighment basis (Unit – MT)
- (b) Reinforcement Steel : Weighment basis (Unit – MT)
and Earthing rod (MS round).

All the steel (structural, reinforcement, earthing MS rod,) issued by the BHEL shall be properly accounted for. The total quantity of steel required for the work will be calculated from the approved Bar Bending schedule, fabrication drawings, approved laps, chairs and lugs. The measurement for payment as well as for accounting shall be based on the sectional weights as indicated in the following IS specifications. No rolling tolerances shall be accepted in any case for issue, return, reconciliation & payment purpose.

IS: 808- latest revision	Beams, Channels and Angles
IS: 1730- latest revision	Plates, Sheets and Strips/Flats
IS: 1732- latest revision	Rounds including deformed high yield strength bars.

In case any such sectional weights are not available in the above documents, the manufacturer recommendation shall be binding.

The steel issued to the contractor shall be mainly in standard length and sections as received from the supplier. However, the contractor shall be bound to accept the steel in length as available in the project stores no claims for extra payment because of issue of non-standard length will be entertained.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL stores.

The contractor shall submit to the engineer, a statement indicating estimated quantity of steel required during a quarter, at least two months in advance of the quarter. In addition, the contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month indicating his requirement.

Following shall be limit for the maximum quantity of BHEL issue materials that would be with the contractor at any point of time when work is in progress (excluding what has already been incorporated in the works).

SI no	ISSUE OF MATERIALS	MAX. QTY IN CONTRACTOR'S STORE
1	Reinforcement Steel & Earthing rod MS round	Requirement of one month
2	Structural Steel	-----DO-----

Bidders to ensure that no lamination materials are taken over by them from BHEL. Fabrication wastage, if any due to above, shall not be compensated by BHEL.

Bidder to note that steel materials required for MS Grating, Galvanised Grating, GI Handrail, Stainless Steel Handrail, Stainless steel for SS Flue can, fasteners like MS/HT/HSFG bolts/nuts, lock nuts, washers and foundation bolts, embedded items other than those supplied by BHEL, etc shall be supplied by the bidder. However, Bidder shall use the scrap materials for their use in the permanent works as embedment/inserts etc. after necessary store issue formalities and shall be accounted for monthly reconciliation.

1.11.3 RETURN OF MATERIALS

All surplus steel and all wastage materials will be taken back on weightment basis. Surplus, unused and untampered steel shall be sorted section-wise and returned separately for a place directed by BHEL/Engineer within the project area. Return of such materials will not be entitled to any handling and incidental charges.

All wastage / scrap (including melting scrap, wastage, un usable scrap) shall be promptly returned to the stores and a receipt obtained for material accounting purposes. Return of such material will not be entitled to any transportation and incidental charge

1.11.4 SCRAP & SERVICEABLE MATERAILS:

1.11.1.1 All Structural steel of length above 2 M except M.S. Plate shall be considered as serviceable materials provided the materials is in good and acceptable condition. Structural steel in length less than 2 M shall be treated as scrap.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

- 1.11.1.2 Plates having both sides greater than 1 Metre OR if any side is less than 1 M but greater than 0.5 M and the total area is equal or greater than 2 Sq. Metre shall be considered as serviceable.
- 1.11.1.3 All pipes measuring 2 M and above in length shall be treated as serviceable materials provided they are in good and acceptable condition. Pipe in less than 2 M length shall be treated as scrap.
- 1.11.1.4 All TMT measuring 3 M and above in length shall be treated as serviceable materials provided they are in good and acceptable condition. TMT in less than 3 M length shall be treated as scrap.

1.11.5 STEEL CONSUMPTION AND WASTAGE

1.11.1.1 REINFORCEMENT AND EARTHING ROD MS ROUND STEEL CONSUMPTION AND WASTAGE

a) CONSUMPTION.

The theoretical consumption of various sections and/or diameter of reinforcement and earthing rod steel shall be based on approved construction drawing and bar bending schedule. Weight shall be calculated considering the sectional weights as per Indian standards. No extra cost shall be payable to the contractor for any deviation in weights for the different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

I. Actual consumption = Issue – Surplus.

Surplus = Un-tampered & unused quantity of steel and Serviceable materials as stipulated under clause “Scrap and Serviceable Materials (Refer Clause 1.11.4 above)” returned by the contractor to BHEL store along with relevant documents.

II. Wastage = Actual consumption – Theoretical consumption.

b) WASTAGE

ALLOWABLE WASTAGE: - (+3%) of the theoretical consumption shall be considered as allowable wastage. Invisible wastage (max limit to 0.5%), if any, shall be considered to be included in the specified 3 % allowable wastage.

S.No	CONSUMPTION OF REINFORCEMENT STEEL & EARTHING ROD, MS ROUND	BASIS OF ISSUE
R-1	Theoretical consumption (without considering any wastage, scrap or loss) as per spec. & drg.	Free
R-2	Wastage limited to plus three percent (+3%) of the aforesaid theoretical consumption (R-1) towards allowable wastage including invisible wastages (invisible wastages limited to 0.5% of theoretical consumptions)	Free

TECHNICAL CONDITIONS OF CONTRACT (TCC)

R-3	Wastage beyond three Percent (3%) of the aforesaid theoretical consumption (R-1)	Penal Rate
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1.11.1.2 STRUCTURAL STEEL, (ROLLED SECTION, PLATES ETC.) CONSUMPTION & WASTAGE

a) CONSUMPTION: -

The theoretical consumption of various sections shall be based on approved drawings. Weights shall be calculated considering the sectional weights as per Indian standard. No extra shall payable to the contractor for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

I. Actual consumption = Issue – Surplus.

Surplus = Un tampered & unused quantity of steel and Serviceable materials as stipulated under clause “Scrap and Serviceable Materials (Refer Clause 1.11.4 above)” returned by the contractor to BHEL store along with relevant documents.

II. Wastage = Actual consumption – Theoretical consumption.

b) WASTAGE

Allowable wastage: - 4% (FOUR percent) of the theoretical consumption shall be considered. Wastage shall be considered as cut pieces and scrap material, measured as per actual weightment basis. Invisible wastage (max limit to 0.5%), if any, shall be considered to be included in the specified 4 % allowable wastage.

S.No	CONSUMPTION OF STRUCTURAL STEEL (ROLLED SECTION, PLATES)	BASIS OF ISSUE
S-1	Theoretical consumption (without considering any wastage, scrap or loss) as per spec. & drg.	Free
S-2	Wastage limited to plus Four percent (+4%) of the aforesaid theoretical consumption (S-1) towards allowable wastage including invisible wastages (invisible wastages limited to 0.5% of theoretical consumptions)	Free
S-3	Wastage beyond four Percent (4%) of the aforesaid theoretical consumption (S-1)	Penal Rate

1.11.1.3 RECONCILIATION OF MATERIALS;

The contractor shall submit a reconciliation statement of steel issued to him with each RA Bill.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

At the time of submission of bills, the contractor shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance material are available with contractor's custody at site.

At the time of submission of bills by the contractor, if it is noticed by BHEL that the wastage is high and calls recovery at the penal rate, then, BHEL will proceed for recovery for the excess wastage as per penal recovery rates as specified.

The reference drawings for actual material consumption to be used for the purpose of reconciliation shall be drawings prepared by the BHEL and drawings approved by BHEL for fabrication works and such other drawings approved by BHEL. This shall also include the bar bending schedule prepared by the contractor and approve by BHEL

1.11.1.4 RECOVERY OF MATERIAL

If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly R/A Bill at the Penal Rate

1.11.1.5 PENAL RATE OF MATERIALS

A	REINFORCEMENT STEEL Cold rolled steel, high strength, deformed bar or mild steel round bars including earthing rod MS round	Rs. 36,908/- per MT + GST and/or other taxes & duties
B	STRUCTURAL STEEL MS plates, MS flats, rolled steel joists, channels, and angles, MS pipes, Chequered Plates, etc in sizes and lengths as available	Rs. 45,486/- per MT + GST and/or other taxes & duties
C	CEMENT (OPC/ PPC/PSC)	Rs. 5,578/- per MT + GST and/or other taxes & duties

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VOLUME-IA PART – I CHAPTER - XII PROGRESS OF WORK

The scope of the work will comprise of following but not limited to the following
PROGRESS AND MONITORING OF WORK

1.12.0 PROGRESS AND MONITORING OF WORK:

- 1.12.1 Refer forms F -14 to F-18 of volume I D of volume -I book-II. Plan and review will be done as per the formats. Please note that Form F-14 and F-15 are revised and published in this booklet (Volume I Book I). These should be submitted on monthly basis with duly signed by BHEL and Contractor
- 1.12.2 Contractor is required to draw mutually agreed monthly construction programs in consultation with BHEL well in advance monthly as per the Form-14. Contractor shall ensure achievement of agreed program and shall also timely arrange additional resources considered necessary at no extra cost to BHEL. Progress review meetings will be held at site during which actual progress during the week vis-a-vis scheduled program shall be discussed for actions to be taken for achieving targets. Contractor shall also present the program for subsequent week. The contractor shall constantly update / revise his work program to meet the overall requirement. All quality problems shall also be discussed during above review meetings. Necessary preventive and corrective action shall be discussed and decided upon in such review meetings and shall be implemented by the contractor in time bound manner so as to eliminate the cause of nonconformities.
- 1.12.3 The contractor shall submit daily, weekly and monthly progress reports, manpower reports, materials report, consumables (gases / electrodes / ferules / lugs) report, T&Ps availability report and other reports as per Performa considered necessary by the Site Engineer as per the BHEL formats.
- 1.12.4 The contractor shall submit weekly / fortnightly / monthly statement report regarding consumption of all consumables for cost analysis purposes
- 1.12.5 The monthly report ending on 24th of every month shall be submitted as a booklet and shall contain the following details
 - a) Colour Progress photographs to accompany the report should be submitted.
 - b) Construction progress in terms of quantity, CUM,etc., completed as relevant to the respective work areas against planned.
 - c) Site Organization chart of engineers & supervisors as on 24th of the month with further mobilization plan
 - d) Category- wise man hours engaged during the previous month under the categories like fitters, electricians, welders, riggers, khalasis, grinder-men,

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gas-cutters, crane operators, store keepers, lab technicians, helpers, security etc. Data will be spilt up under the work area .

- e) Consumables report giving consumption of all types of gases and electrodes during the previous month.
- f) Availability report of cranes/T&Ps
- g) Safety implementation report in the format
- h) Pending material and any other inputs required from BHEL for activities planned during the subsequent month

1.12.6 The manpower reports shall clearly indicate the manpower deployed, category wise specifying also the activities in which they are engaged

1.12.7 During the course of construction, if the progress is found unsatisfactory, or if the target dates fixed from time to time for every milestone are to be advanced, or in the opinion of BHEL, if it is found that the skilled workmen like fitters, operators, technicians etc employed are not sufficient BHEL will induct required additional workmen to improve the progress and recover all charges incurred on this account including all expenses together with BHEL overheads from contractor's bills

1.12.8 It is the responsibility of the contractor to provide all relevant information on a regular basis regarding construction progress, labour availability, equipment deployment, testing, etc.

1.12.9 The progress reports shall indicate the progress achieved against plan, indicating reasons for delays, if any. The report shall also give remedial actions which the contractor intends to make good the slippage or lost time so that further works can proceed as per the original plan the slippages do not accumulate and affect the overall programme.

1.12.10 The contractor to reflect actual progress achieved during the month and will be submitted to BHEL, so that slippages can be observed and necessary action taken in order to ensure that the situation does not get out of control will update the construction schedule forming part of this contract each month

TECHNICAL CONDITIONS OF CONTRACT (TCC)

VOLUME-IA PART -I CHAPTER -XIII

MATERIAL HANDLING

1.13.1 Open land as available shall be provided by BHEL on free of cost basis. Contractor shall maintain one centralized fenced store cum bar bending yard. Hard surfacing of this yard and all round drain shall be carried out by the contractor at his own cost within the quoted rate. Batching plant area, shall be provided nearer plant premises and contractor shall make use of the area for installation and operation of the Batching Plant at his own cost. The bidder shall make complete arrangement of necessary security personnel, to safeguard all such materials in his custody. Materials issued will be used only for construction of permanent work. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering

1.13.2 The system for receipt, storage & issue of materials shall be available with vendors for easy traceability

1.13.3 Periodic audit of system of purchasing, storing and issue, etc. will have to be carried out by the vendors. BHEL will also audit the same

1.13.4 The contractor shall construct waterproof cement store (capacity 400MT) for initial period for storing and stacking of cement, CGI/ asbestos roofing (slope) with brick masonry wall, PCC flooring. Materials required for the same shall be provided by contractor at his own cost. Cement has to be kept over wooden raised platform. Stacking of cement is to be done as per IS codes with proper illumination and locking arrangements

1.13.5 The contractor shall in no case be entitled for any compensation or damages on account of any delay in supply or non-supply thereof for all or any such material

1.13.6 Clotting of cement and excessive rusting of steel must be avoided. In case, due to any cause attributable to the contractor, rusting of steel for BHEL issued steel occur rendering the same unusable, then such quantity of cement and steel shall be recovered from the interim payment at the penal rate specified in the tender.

1.13.7 The contractor shall maintain proper store account for all the BHEL issued materials and shall give three copies of once in two months computerized reconciliation statement of such account to the BHEL

1.13.8 All TMT shall be stacked over sleeper's diameter wise.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

1.13.9 All structural steel (issued for insert/ embedment) shall be stacked plate size wise and thickness wise beams, channels and angles shall be stacked separately on sleepers.

1.13.10 Materials shall not under any circumstances taken out of the project site unless otherwise permitted by BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

VOLUME-IA PART – II CHAPTER 1

CORRECTIONS / REVISIONS IN SPECIAL CONDITIONS OF CONTRACT, GENERAL CONDITIONS OF CONTRACT AND FORMS & PROCEDURES

SI No: 1

Clause 4.1.11 under 'Obligations of Contractor of SCC is deleted.

SI No: 2:

OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT MANAGEMENT/ QUALITY ASSURANCE PROGRAMME

The following clauses in Occupational Health, Safety & Environment Management / Quality Assurance Programme published in Chapter-IX of Special Conditions of Contract (Volume I Book-II) is revised as under.

Chapter IX Clause 9.1 is modified as below:

Contractor will comply with HSE (Health, Safety & Environment) requirements of BHEL as per the "HSE Plan for Site Operations by Subcontractor" (Document No. HSEP: 14 Rev00) enclosed.

Chapter IX Clause 9.1.1 to 9.1.25 stands deleted. Chapter IX Clause 9.2 to 9.62 stands deleted.

SI No: 3:

Clause No. 10.5 on RA Bill Payments, in Special Conditions of Contract (SCC), Volume-IB, Book-II, is revised as under:

The payment for running bills will normally be released within 30 days of submission of running bill complete in all respects with all documents. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc., and other dues in the meanwhile.

SI. No.: 4

The EARNEST MONEY DEPOSIT (EMD) clause 1.9 published in General Conditions of Contract (Volume I Book-II) is revised as under.

1.9 EARNEST MONEY DEPOSIT

1.9.1 Every tenderer shall submit the prescribed amount of Earnest Money Deposit (EMD) to BHEL PSSR, only in any one of the following forms: -

- i) Electronic Fund Transfer credited in BHEL account (before tender opening).
- ii) Through Online EMD payment portal of BHEL with SBI (before tender opening) by following steps as below: -
 1. Visit www.onlinesbi.com -> Go to State Bank Collect (In the tab section)
 2. Click Check box to proceed for payment -> Click on Proceed
 3. Under State of Corporate/Institution ->Select Tamilnadu

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4. Under Type of Corporate/Institution -> Select PSU – Public Sector Undertaking -> Go
5. Under PSU – Public Sector Undertaking Name -> Select BHEL PSSR CHENNAI and Submit
6. Under Select Payment Category ->-> SCT Tender EMD & Tender Fees

iii) Banker's Cheque or Pay order or Demand Draft in favour of 'Bharat Heavy Electricals Limited' (along with offer) and payable at Chennai.

iv) Fixed Deposit Receipt (FDR) issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL) along with the offer.

v) In case EMD amount is more than Rs. Two Lakhs, Tenderer has the option to submit Rs. Two lakhs in any one of form described above in clause no. 1.9.1. (i) to (iv) and the remaining amount over and above Rs. Two Lakhs in the form of Bank Guarantee from Scheduled Bank, along with the Offer.

Note:

- a) The Bank Guarantee shall be valid for at least six months from the due date of tender submission mentioned in the Notice Inviting Tender. Proforma of BG for EMD enclosed.
- b) Date of Expiry of Claim shall be as per format for Performa of Bank Guarantee for EMD.
- c) Performa for Bank Guarantee for EMD is enclosed with this Tender.

Bank Details for the purpose of Taking EMD

Name and Address of Beneficiary:	Bharat Heavy Electricals Ltd. #690, EVR Periyar Building, Nandanam, Anna Salai, Chennai – 600 035
Name of Bank :	State Bank Of India
Bank Branch Address:	SBI Saidapet Branch, EVR Periyar Building, Nandanam, Anna Salai, Chennai - 35
IFSC Code :	SBIN0000912
Account No. :	10610819499

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Details for SFMS (Structured Financial Messaging System) transmission of BG

Bank and Branch	SBI TFCPC Branch
Branch Code	5056
IFSC Code	SBIN0005056

1.9.2 EMD shall not carry any interest.

1.9.3 EMD by the Tenderer will be forfeited as per NIT Conditions, if:

- After opening the tender and within the offer validity period, the Tenderer revokes his tender or makes any modification in his tender which is not acceptable to BHEL.
- The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/Contract

1.9.4 EMD given by all unsuccessful tenderers will be refunded normally within 15 days of award of work.

1.9.5 EMD of successful tenderer will be retained as part of Security Deposit.

1.9.6 EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provisions of extant" Guidelines on Suspension of Business dealings with suppliers/contactors" and forfeited / released based on the action determined under these guidelines.

SI. No.: 5

SECURITY DEPOSIT The SECURITY DEPOSIT (SD) clause 1.10 published in General Conditions of Contract (Volume I Book-II) is revised as under.

1.10 Security Deposit:

1.10.1 Upon acceptance of Tender, the successful Tenderer should deposit the required amount of Security Deposit for satisfactory completion of work, as given below:

1.10.2 The total amount of Security Deposit will be 5% of the contract value. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.

1.10.3 The security Deposit should be furnished before start of the work by the contractor.

1.10.4 Modes of deposit:

1.10.4.1 The balance amount to make up the required Security Deposit of 5% of the contract value may be furnished in any one of the following forms

- Cash (as permissible under the extant Income Tax Act)
- Local cheques of Scheduled Banks (subject to realization) / Pay Order / Demand Draft / Electronic Fund Transfer in favour of BHEL

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- iii. Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format for Security Deposit shall be in the prescribed formats.
- iv. Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the contractor, A/C BHEL, duly discharged on the back.
- v. Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (Certificates should be held in the name of Contractor furnishing the security and duly endorsed/hypothecated/ pledged, as applicable, in favour of BHEL and discharged on the back)

(Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith)

- 1.10.5 At least 50% of the Security Deposit including the EMD should be deposited in any form as prescribed before start of the work and the balance 50% of the Security Deposit will be recovered by deducting 10% of the gross amount progressively from each running bills of the contractor till the total amount of the required Security Deposit is collected.
- 1.10.6 The recoveries made from running bills (cash deduction towards balance SD amount) will be released against submission of equivalent Bank Guarantee in the prescribed formats, but only once, before completion of work.
- 1.10.7 The Security Deposit shall not carry any interest.
- 1.10.8 If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the excess Security Deposit due the enhancement shall be immediately deposited by the Contractor or recovered from payment/s due to the Contractor.
- 1.10.9 The validity of Bank Guarantees towards Security Deposit shall be as per Performa for Bank Guarantee for SD and the same shall be kept valid by proper renewal till the acceptance of Final Bills of the Contractor, by BHEL
- 1.10.10 BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the Contractor's failure to fulfill any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract. BHEL reserves the right to set off the Security Deposit against any claims of other contracts with BHEL.
- 1.10.11 **Penalty for Delayed Remittance of Security Deposit**
If the contractor fails to furnish SD before start of work, in line with 1.10.3 above, Simple Interest against delayed remittance of the Security Deposit

TECHNICAL CONDITIONS OF CONTRACT (TCC)

shall be deducted from the sub-contractor at the rate of SBI PLR + 2% on the value of 50% SD of the contract, for the delayed period (i.e., period between start of work and date of remittance of Initial SD, i.e., atleast 50% of SD). In case, the delayed period has different SBI PLR rates, Simple Interest shall be calculated based on different rates by considering the corresponding time period. On similar lines Penalty shall be levied for delayed remittance of Additional Security Deposit (if applicable).

Note: - Bank details & SFMS details provided above in Sl. No. 04 Earnest Money Deposit) may be used for the purpose of arranging Bank Guarantees towards Security Deposit / Additional Security Deposit also.

Sl no 6

Clause 2.7.2 and 2.7.3 in GCC regarding Rights of BHEL is revised as under:

2.7.2.

2.7.2.1 To terminate the contract or withdraw portion of work and get it done through other agency, at the risk and cost of the contractor after due notice of a period of 14 days by BHEL in any of the following cases:

- i. Contractor's poor progress of the work vis-à-vis execution timeline as stipulated in the Contract, backlog attributable to contractor including unexecuted portion of work does not appear to be executable within balance available period considering its performance of execution.
- ii. Withdrawal from or abandonment of the work by contractor before completion of the work as per contract.
- iii. Non-completion of work by the Contractor within scheduled completion period as per Contract or as extended from time to time, for the reasons attributable to the contractor.
- iv. Termination of Contract on account of any other reason (s) attributable to Contractor.
- v. Assignment, transfer, subletting of Contract without BHEL's written permission.
- vi. Non-compliance to any contractual condition or any other default attributable to Contractor.

Risk & Cost Amount against Balance Work:

Risk & Cost amount against balance work shall be calculated as follows:

$$\text{Risk & Cost Amount} = [(A-B) + (A \times H/100)]$$

Where,

A= Value of Balance scope of Work (*) as per rates of new contract B= Value of Balance scope of Work (*) as per rates of old contract being paid to the contractor at the time of termination of contract i.e. inclusive of PVC & ORC, if any.

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H = Overhead Factor to be taken as 5

In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).

* Balance scope of work (in case of termination of contract):

Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for

‘Termination of Contract’, shall be taken as balance scope of Work for calculating risk & cost amount. Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.

Items for which total quantities to be executed have exceeded the Contract Quantities based on drawings issued to contractor from time to time till issue of Termination letter, then for these items

total Quantities as per issued drawings would be deemed to be contract quantities. Substitute/ extra items whose rates have already been approved would form part of contract quantities for this purpose. Substitute/ extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions.

However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.

NOTE: Incase portion of work is being withdrawn at risk & cost of contractor instead of termination of contract, contract quantities pertaining to portion of work withdrawn shall be considered as ‘Balance scope of work’ for calculating Risk & Cost amount.

LD against delay in executed work in case of Termination of Contract:

LD against delay in executed work shall be calculated in line with LD clause no. 2.7.9 of GCC, for the delay attributable to contractor. For limiting the maximum value of LD, contract value shall be taken as Executed Value of work till termination of contract.

Method for calculation of “LD against delay in executed work in case of termination of contract” is given below.

- i). Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor = T1
- ii). Let the value of executed work till the time of termination of contract= X
- iii). Let the Total Executable Value of work for which inputs/fronts were made available to contractor and were planned for execution till termination of contract = Y

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- iv). Delay in executed work attributable to contractor i.e. $T2=[1-(X/Y)] \times T1$
- v). LD shall be calculated in line with LD clause (clause 2.7.9) of the Contract for the delay attributable to contractor taking "X" as Contract Value and "T2" as period of delay attributable to contractor.

2.7.2.2 In case Contractor fails to deploy the resources as per requirement, BHEL can deploy own/hired/otherwise arranged resources at the risk and cost of the contractor and recover the expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads or as defined in TCC.

2.7.3 **Recoveries arising out of Risk & Cost and LD or any other recoveries due from Contractor**
Following sequence shall be applicable for recoveries from contractor:

- a) Dues available in the form of Bills payable to contractor, SD, BGs against the same contract.
- b) Demand notice for deposit of balance recovery amount shall be sent to contractor, if funds are insufficient to effect complete recovery against dues indicated in (a) above.
- c) If contractor fails to deposit the balance amount to be recovered within the period as prescribed in demand notice, following action shall be taken for balance recovery:
 - i) Dues payable to contractor against other contracts in the same Region shall be considered for recovery.
 - ii) If recovery cannot be made out of dues payable to the contractor as above, balance amount to be recovered, shall be informed to other Regions/Units for making recovery from the Unpaid Bills/Running Bills/SD/BGs/Final Bills of contractor.
 - iii) In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against contractor.

SL No: 7

In addition to clause 2.7.9 of General Conditions of Contract (GCC), a New clause 2.7.9.1 is added as below.

2.7.9.1 Penalty for Intermediate Milestones

2.7.9.1.1 M1 and M2 shall be intermediate milestones for this work for each unit. Incase delay in achieving M1 milestone the penalty shall be levied on the bidder. Incase delay in achieving each M1 milestone is solely attributable to the contractor, 0.5% per week of executable contract value limited to Maximum 2% of executable contract value will be withheld. Incase delay in achieving each M2 milestone is solely attributable to the contractor, 0.5% per week of executable contract value** limited to Maximum 3.0% of

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executable contract value will be withheld.

- 2.7.9.1.2 Amount already withheld, if any, against slippage of M1 milestone, shall be released only if there is no delay attributable to contractor in achievement of M2 milestone.
- 2.7.9.1.3 Amount required to be withheld on account of slippage of identified intermediate milestone shall be withheld out of respective milestone payment and balance amount shall be withheld at 10% of RA bill amount from subsequent RA bills.
- 2.7.9.1.4 Final Deduction towards LD (if applicable) on account of delay attributable to contractor shall be based on final delay analysis on completion/ closure of contract as per GCC. Withheld amount, if any due to slippage of intermediate milestones shall be adjusted against LD or released as the case may be.
- 2.7.9.1.5 In case of termination of contract due to any reason attributable to contractor before completion of work, the amount already withheld against slippage of intermediate milestones shall not be released and be converted into recovery.

Note : **Executable contract value - value of work for which inputs/ fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone.

SL No: 8

OVERRUN COMPENSATION (ORC)

The **OVERRUN COMPENSATION (ORC)** clause 2.12 published in General Conditions of Contract (Volume I Book-II) is revised as under.

2.12 OVERRUN COMPENSATION (ORC)

2.12.1 **ORC during original contract period:** No ORC shall be applicable during the original contract period.

2.12.2 **ORC during extended period for the reasons solely attributable to contractor:** No ORC shall be applicable during the extended period granted for the reasons solely attributable to contractor and work executed during this period shall be paid as per original contract rates.

2.12.3 **ORC during extended period for the reasons not attributable to contractor:**
ORC shall be payable as per following procedure:

2.12.3.1 For initial period of twelve months of extended period, ORC rate applicable over executed value shall be 5%. For every subsequent period of twelve months, ORC rate shall be further increased by 5% over the previous rate. For example, ORC rates applicable for initial period of 12 months and subsequent period of 12 months are given below.

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Sl. No.	Extended Period for the reasons attributable to BHEL	ORC rate applicable over executed value
1	First 12 months	5%
2	13 th -24 th month and so on	10.25% $\{[(1.05 \times 1.05)-1] \times 100\}$

This process of increasing ORC rate for each subsequent period of 12 months shall continue till applicability of ORC.

2.12.3.2 On completion of original contract period as well as on completion of each subsequent period of twelve months i.e. at the time of change in applicable ORC rate, Delay Analysis shall be carried out and percentage shortfall attributable to both BHEL & Contractor shall be calculated.

2.12.3.3 For the purpose of calculation of ORC, executed value of work in the month shall be divided in Part-1 and Part-2 in proportion of percentage shortfall attributable to BHEL and contractor respectively, based on the last delay analysis as worked out in 2.12.3.2.

ORC shall be payable only on Part-1 and no ORC shall be payable on Part-2. Value of Part-1 shall be further limited to the value of actual inputs provided by BHEL i.e. "Plan - Shortfall attributable to BHEL" for the month, as per Form-14 for calculation of ORC.

2.12.3.4 Payment of ORC amount shall be further regulated as follows:

- (i) 50% of the ORC is allocated for deployment of matching resources (with weightages) agreed as per the joint programme drawn vide 2.11.4. ORC Payment against resources shall be calculated in proportion to percentage of resources actually deployed w.r.t. planned resources, as per Form-14.
- (ii) 50% of ORC is allocated for achieving of planned progress agreed as per the joint programme drawn vide 2.11.4. ORC Payment shall be reduced in proportion to percentage shortfall attributable to contractor w.r.t. "Plan - Shortfall attributable to BHEL" for the month, as per Form-14.

2.12.3.5 The maximum amount of ORC payable for the month shall be limited to Rs. 5,00,000/-.

2.12.3.6 In case, there is no shortfall attributable to contractor for the month and also contractor has deployed the resources as agreed in Form-14 but ORC amount payable for the month worked out as per procedure mentioned in clause 2.12.3.3, 2.12.3.4 and 2.12.3.5, is less than Rs.1,00,000/-, then ORC amount payable for the month shall be Rs.1,00,000/- otherwise ORC amount payable for the month shall remain same.

2.12.3.7 In case execution is on **HOLD** (Other than Force Majeure), ORC shall be

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payable as per following:

- i). Contractor has not been permitted by BHEL to de-mobilize
 - a) ORC amount of Rs. 1,00,000/- per month shall be applicable during the period of HOLD provided resources as planned are deployed (not demobilized) during the period of hold.
 - b) Subsequent to lifting of HOLD, Period of HOLD shall not be excluded in calculation of period for deciding applicable ORC rate as per clause 2.12.3.1.
- ii). Contractor has been permitted to demobilize and to remobilize after lifting of HOLD
 - a) No ORC shall be payable to contractor for the period of HOLD.
 - b) Subsequent to lifting of HOLD, Period of HOLD shall not be excluded in calculation of period for deciding applicable ORC rate as per clause 2.12.3.1.

2.12.3.8 In case **Force Majeure** is invoked:

- i). No ORC shall be applicable during the period of Force Majeure.
- ii). Subsequent to revocation of Force Majeure, period of Force Majeure shall be excluded in calculation of period for deciding applicable ORC rate as per clause 2.12.3.1.

2.12.4 Applicability of ORC: ORC shall not be applicable for following activities.

- (i) Area cleaning, removal of temporary structures and return of scrap.
- (ii) Punch list points / pending points liquidation pending due to reasons attributable to contractor
- (iii) Submission of "As built Drawing"
- (iv) Material Reconciliation
- (v) Completion of Contract Closure formalities like HR Clearance/ No dues from various dept./ Statutory Authorities etc.

2.12.5 Total Over Run Compensation shall be limited to 10% of the cumulatively executed contract value till the month (excluding Taxes and Duties if payable extra). For this purpose, executed contract value excludes PVC, ORC and Extra/Supplementary Works.

SI No: 9

Clauses 2.13.1, 2.13.6 & 2.13.7 in GCC on Interest Bearing Recoverable Advances,

- 9.1 Clauses 2.13.1, 2.13.6 & 2.13.7 in GCC is revised as under:
- 9.1.1 Clause 2.13.1 in GCC is revised as "Normally no advance payment shall be payable to the contractor. Mobilization advance payment in exceptional circumstances shall be interest bearing and secured through a Bank

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Guarantee and shall be limited to a maximum of 5% of contract value. This 'Interest Bearing Recoverable Advance' shall be payable in not less than two installments with any of the installment not exceeding 60% of the total eligible advance".

9.1.2 Clause 2.13.6 in GCC is revised as "The rate of interest applicable for the above advances shall be the Base rate of State Bank of India prevailing at the time of disbursement of the advance + 6%, and such rate will remain fixed till the total advance amount is recovered".

9.1.3 Clause 2.13.7 in GCC is revised as "Unadjusted amount of advances paid shall not exceed 5% of the total contract value at any point of time. Recovery of advances shall be made progressively from each Running Bill such that the advance amounts paid along with the interest is fully recovered by the time the contractor's billing reaches 90% of contract value."

SI. No: 10 - void

SI No: 11

PRICE VARIATION COMPENSATION (PVC)

The PRICE VARIATION COMPENSATION (PVC) clause 2.17 published in General Conditions of Contract (Volume I Book-II) is revised as under.

2.17 PRICE VARIATION COMPENSATION

2.17.1 In order to take care of variation in cost of execution of work on either side, due to variation in the index of LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, MATERIALS, Price Variation Formula as described herein shall be applicable (only for works executed during extended period, if any, subject to other conditions as described in this section).

2.17.2 85% component of executed Contract Value shall be considered for PVC calculations and remaining 15% shall be treated as fixed component. The basis for calculation of price variation in each category, their component, Base Index, shall be as under:

2.17.3

SI. No .	CATEGORY	BASE INDEX	PERCENTAGE COMPONENT ('K')			
			CIVIL PACKAGES (See Note A/B/C)			MECHA NICAL PACKA GES
			A	B**	C	

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i)	LABOUR (ALL CATEGORIES)	'MONTHLY ALL-INDIA AVERAGE CONSUMER PRICE INDEX NUMBERS FOR INDUSTRIAL WORKERS' published by Labour Bureau, Ministry of Labour and Employment, Government of India. (Website: labourbureau.nic.in)	40	25	30	65	80
ii)	HIGH SPEED DIESEL OIL	Name of Commodity: HSD Commodity code: 1202000005 (See Note E)	5	3	5	5	5
iii)	WELDING ROD	Name of Commodity: MANUFACTURE OF BASIC METALS Commodity code: 1314000000 (See Note E)				15	
iv)	CEMENT	Name of Commodity: ORDINARY PORTLAND CEMENT Commodity code: 1313050003 (See Note E)		20	30		
v)	STEEL (Structural and Reinforcement Steel)	Name of Commodity: MILD STEEL: LONG PRODUCTS Commodity code: 1314040000 (See Note E)		25			
vi)	ALL OTHER MATERIALS (Other than Cement & Steel)	Name of Commodity: ALL COMMODITIES Commodity code: 1000000000 (See Note E)	40	12	20		

Note: A) Cement & Steel: Free Issue (BHEL Scope)

B) Cement & Steel: In Contractor Scope

C) Cement in Contractor Scope, and Steel is Free Issue (BHEL Scope)

D) For Composite packages (i.e. Civil + Mechanical + Electrical and / or CI or Civil + Mechanical or Mechanical + Electrical and / or CI), the Component ('K') for various categories shall be as per respective packages as above

E) As per the 'MONTHLY WHOLE SALE PRICE INDEX' for the respective Commodity and Type, published by Office of Economic Adviser, Ministry of Commerce and Industry, Government of India. (Website: <http://www.eaindustry.nic.in/download data 0405.asp>). Revisions in the index or commodity will be re adjusted accordingly.

2.17.4 **Void**

2.17.5 Payment / recovery due to variation in index shall be determined on the basis of the following notional formula in respect of the identified component ('K') viz LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, MATERIALS.

$$P = K \times R \times \frac{(X_N - X_0)}{X_0}$$

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Where

P = Amount to be paid/recovered due to variation in the Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials

K = Percentage component ('K') applicable for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials

R = Value of work done for the billing month (Excluding Taxes and Duties if payable extra)

XN = Revised Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials for the billing month under consideration

Xo = Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials as on the Base date.

2.17.6 **Base date shall be the calendar month of the schedule completion date (i.e. Actual Start date + Scheduled Contractual Completion period as per Letter of Intent / award and / or work order).**

2.17.7 PVC shall not be payable for the ORC amount, Supplementary / Additional Items, Extra works. However, PVC will be payable for items executed under quantity variation of BOQ items under originally awarded contract.

2.17.8 The contractor shall furnish necessary monthly bulletins in support of the requisite indices from the relevant websites along with his Bills.

2.17.9 The contractor will be required to raise the bills for price variation payments on a monthly basis along with the running bills irrespective of the fact whether any increase/decrease in the index for relevant categories has taken place or not. In case there is delay in publication of bulletins (final figure), the provisional values as published can be considered for payments and arrears shall be paid/recovered on getting the final values.

2.17.10 PVC shall be applicable only, during extended period of contract (if any) after the scheduled completion period and for the portion of work delayed/backlog for the reasons not attributable to the contractor.

However, the total Quantum of Price Variation Amount payable/recoverable shall be regulated as follows:

- i) For the portion of shortfall/backlog not attributable to contractor, PVC shall be worked out on the basis of indices applicable for the respective month in which work is done. Base index shall be applicable as defined in clause 2.17.5
- ii) In case of Force Majeure, the PVC shall be regulated as per (a) or (b) below.
 - a) Force Majeure is invoked before "Base Date" / "revised base date" (as explained below) OR immediately after "base date" / "revised base date" in continuation (i.e. during the period when PVC is not applicable):

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- vii. Base date shall be revised: Revised Base date = Previous base date + duration of Force Majeure.
No PVC will be applicable for the work done till revised base date.
- viii. PVC will be applicable for the work done after “base date”/ “revised date” as the case may be (during extended period when delay is not attributable to contractor). PVC shall be worked out on the basis of indices applicable for the respective month in which work is done with base index as on “base date”/ “revised base date” as the case may be.

b) Force Majeure is invoked after “base date”/ “revised base date” as the case may be (during extended period when delay is not attributable to contractor).

2. PVC shall be applicable for the work done after revocation of Force Majeure.
3. PVC for the work done after revocation of Force Majeure shall be worked out on the basis of indices applicable for the respective month on which work is done excluding the effect of change in indices during total period of Force Majeure(s) invoked after “base date” / “revised base date” as the case may be. Base index shall be taken as on “base date” / “revised base date” as the case may be.

The total amount of PVC shall not exceed 15% of the cumulatively executed contract value. Executed Contract value for this purpose is exclusive of PVC, ORC, Supplementary / Additional items and Extra works except items due to quantity variation

SI No: 12

Clauses 2.21 in GCC regarding Arbitration is amended as below

2.21 ARBITRATION & CONCILIATION

2.21.1 ARBITRATION:

2.21.1.1 Except as provided elsewhere in this Contract, in case Parties are unable to reach amicable settlement (whether by Conciliation to be conducted as provided in Clause 2.21.2 herein below or otherwise) in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract (hereinafter referred to as the ‘Dispute’), then, either Party may, commence arbitration in respect of such Dispute by issuance of a notice in terms of section 21 of the Arbitration & Conciliation Act, 1996 (hereinafter referred to as the ‘Notice’). The Notice shall contain the particulars of all claims to be referred to arbitration in sufficient detail and shall also indicate the monetary amount of such claim. The arbitration shall be

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conducted by a sole arbitrator to be appointed by the Head of the BHEL Power Sector Region issuing the Contract within 60 days of receipt of the complete Notice. The language of arbitration shall be English.

The Arbitrator shall pass a reasoned award.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder as in force from time to time shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be Chennai (the place from where the contract is issued). The Contract shall be governed by and be construed as per provisions of the laws of India. Subject to this provision 2.21.1.1 regarding ARBITRATION, the principal civil court exercising ordinary civil jurisdiction over the area where the seat of arbitration is located shall have exclusive jurisdiction over any DISPUTE to the exclusion of any other court.

2.21.1.2 In case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/ Port Trusts inter se and also between CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for resolution through AMRCD (Administrative Mechanism for Resolution of CPSEs Disputes) as mentioned in DPE OM No. 4(1)/2013-DPE(GM)/FTS-1835 dated 22-05-2018 as amended from time to time.

2.21.1.3 The cost of arbitration shall initially be borne equally by the Parties subject to the final allocation thereof as per the award/order passed by the Arbitrator.

2.21.1.4 Notwithstanding the existence of any dispute or differences and/or reference for the arbitration, the Contractor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner unless the dispute inter-alia relates to cancellation, termination or short- closure of the Contract by BHEL.

2.21.2 CONCILIATION:

If at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the agreement, contract), which the Parties are unable to settle mutually, arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee (IEC) to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.

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Notes:

1. No serving or a retired employee of BHEL/Administrative Ministry of BHEL shall be included in the BHEL Panel of Conciliators.
2. Any other person(s) can be appointed as Conciliator(s) who is/are mutually agreeable to both the parties from outside the BHEL Panel of Conciliators.

The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Procedure 2.3 enclosed in Vol 1A Part II Chapter 9. The Procedure 2.3 together with its Formats will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in this GCC.

The Contractor hereby agrees that BHEL may make any amendments or modifications to the provisions stipulated in the Procedure 2.3 enclosed in Vol 1A Part II Chapter 9 from time to time and confirms that it shall be bound by such amended or modified provisions of the Procedure 2.3 with effect from the date as intimated by BHEL to it.

2.21.3 No Interest payable to Contractor

Notwithstanding anything to the contrary contained in any other document comprising in the Contract, no interest shall be payable by BHEL to Contractor on any moneys or balances including but not limited to the Security Deposit, EMD, Retention Money, RA Bills or the Final Bill, or any amount withheld and/or appropriated by BHEL etc., which becomes or as the case may be, is adjudged to be due from BHEL to Contractor whether under the Contract or otherwise.

SI No: 13: (Reverse Auction – not applicable for this tender) The chapter **Reverse Auction** procedure published in 'Forms and Procedures' of Volume I Book-II stands deleted. Reverse Auction Guidelines available in the website <http://www.bhel.com> shall be applicable.

SI No: 14

Existing format on Monthly Performance Evaluation of Contractor, as available in Form No F-14 of Volume ID Forms and procedure stands Deleted. Form No.- F-14 (Rev 01) is enclosed.

SI No: 15

Existing format on Monthly Performance Evaluation of Contractor, as available in Form No F-15 of Volume ID Forms and procedure stands Deleted. Form No.- F-15 (Rev 02) is enclosed.

SI No:16

Clause 2.22 in GCC regarding Retention Amount is revised as under:

2.22 Performance Security Deposit

2.22.1 After award of work, before commencement of work at site Vendor shall submit 5% of the contract value towards Performance Security Deposit, in the form of (a) or (b) below.

- (a) CASH (DD/ Online payment), 5% of the contract Value towards Performance

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Security Deposit, before commencing the contract

(or)

- (b) Recovery 5% from Each Running Bill towards Performance security deposit.
(Note: Subcontractor has to choose either Option (a) or (b) before issue of Detailed LOI).

- (c) However, Performance Security Deposit on part of PVC will be recovered at the rate of 5% from every running bill towards performance security deposit.

2.22.2 Refund of Performance Security Deposit:

- a) 50% of Performance Security Deposit shall be released along with the final bill.
- b) Balance 50% will be released after completion of Performance Guarantee Period (i.e., after expiry of Guarantee period), provided all the defects noticed during the guarantee period have been rectified to the satisfaction of BHEL Site Engineer/ BHEL Construction Manager, and after deducting all expenses/ other amounts due to BHEL under the contract/ other contracts entered into by BHEL with them. This portion of Performance Security Deposit, amount can be released on commencement of the Guarantee Period, on submission of equivalent Bank Guarantee.

SI No: 17

Existing format for Integrity Pact, as available in Volume ID Forms and procedure stands Deleted. Revised Format is enclosed.

SI No: 18

Existing format on No Deviation Certificate, as available in Form No F-03 of volume ID Forms and procedure stands Deleted. Revised Form No.- F-03 Rev 01 is enclosed.

SI No: 19

Existing format on BANK GUARANTEE FOR SECURITY DEPOSIT, as available in Form No F-11 (Rev 00) of Volume ID Forms and procedure stands Deleted. Refer format provided in Volume IA Part II Chapter 8 & 9 of TCC

SI No: 20

Clause 2.15.5 on Extra Works of Contract (GCC), Volume-IC, Book-II, is revised as under:

2.15.5 After eligibility of extra works is established and finally accepted by BHEL engineer/designer, payment will be released on competent authority's approval at the following rate.

MAN-HOUR RATE FOR ELIGIBLE EXTRA WORKS: Single composite average labour man-hour rate, including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals, consumables for carrying out any major rework / repairs / rectification / modification / fabrication as certified by site as may arise during the course of erection, testing, commissioning or extra works arising out of transit, storage and erection damages, payment, if found due will be at Rs 108/- per man hour.

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VOLUME-IA PART – II

In the next pages as below:

Details	CHAPTER	No. of sheets
Revised forms – Form 14 and Form 15	CHAPTER 2	12
Health, Safety and Environment Plan for Site Operation By Subcontractors" (Doc. No. HSEP:14 Rev 00),	CHAPTER 3	72
Hire charges on issue of capital tools & Plants (Only corresponding charges)	CHAPTER 4	14
Proforma of Bank Guarantee (in lieu of Earnest Money)- Form WAM 23	CHAPTER 5	3
Proforma of Bank Guarantee (in lieu of Security Deposit)- Form WAM 22	CHAPTER 6	3
Procedure 2.3 of Arbitration & Conciliation	CHAPTER 7	11
Integrity pact	CHAPTER 8	5
TECHNICAL SPEC NDCT (BOOK 1 OF 2)	CHAPTER-9	454
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labour colony spec	CHAPTER-11	10
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Layout With Toilets	CHAPTER-13	1
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