

# **TENDER SPECIFICATION**

**BHEL PSSR SCT 1850**

**FOR**

Erection, Testing & Assistance for commissioning and Trial Operation of Main Boiler and its Auxiliaries, Air pre heaters, Ducts and Dampers, Fuel piping, Boiler integral piping, Fans, Mills and Feeders, Rotating equipment, SCR system (Selective Catalytic Reduction), application of Insulation & Refractory, including supply & application of final painting, Fabrication and Erection of Mill Bunker, including Handling of materials at storage yard, Transportation to site etc. for Package-A (Unit-1&3) & Package-B (Unit-2&4)

at

5 X 800MW Yadadri TPS

## **PRICE BID**

### **VOLUME -II**



**BHARAT HEAVY ELECTRICALS LIMITED**

(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035

# NOTICE INVITING TENDER

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## **BHARAT HEAVY ELECTRICALS LIMITED**

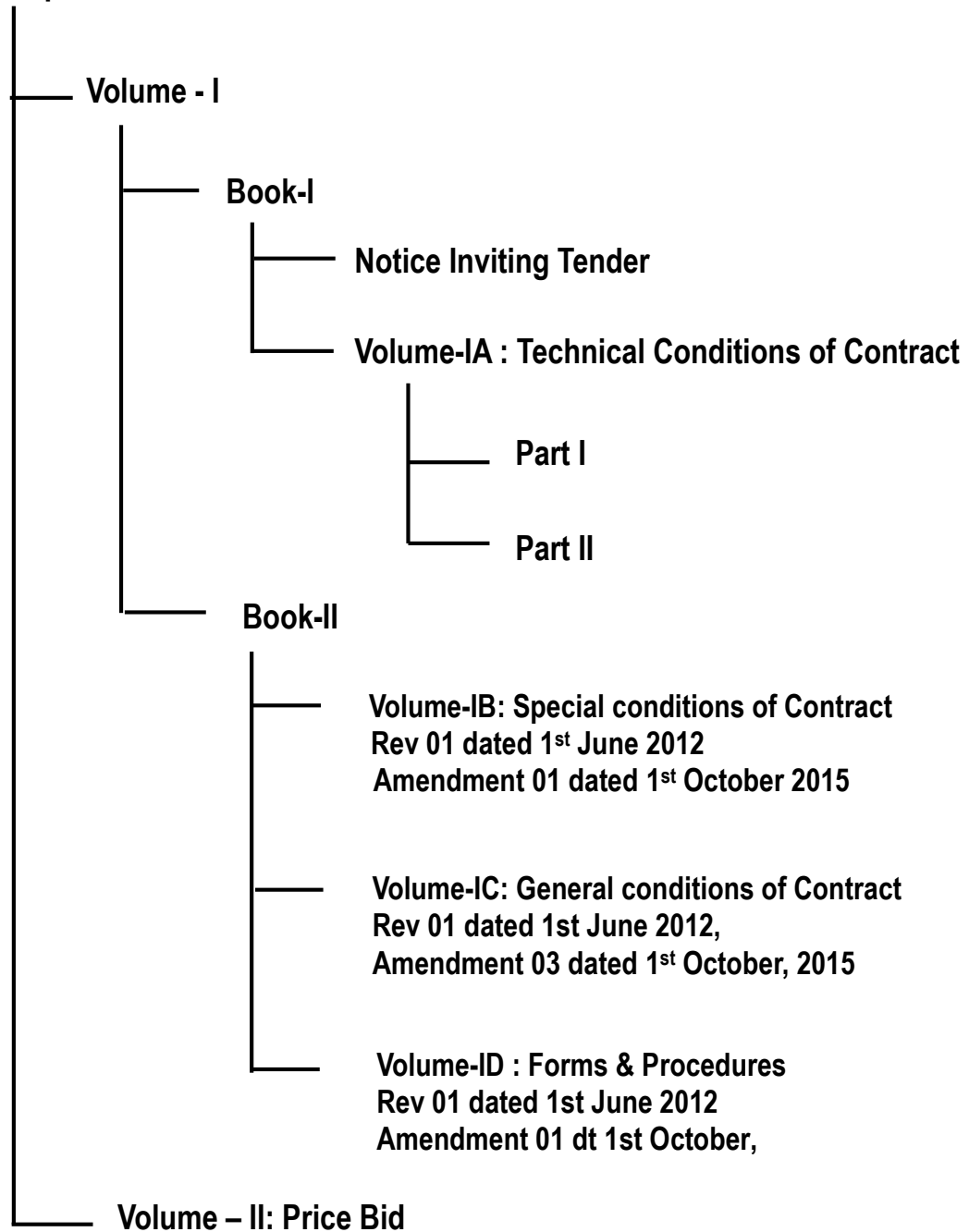
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## **TENDER SPECIFICATION CONSISTS OF**

### Tender Specification



# NOTICE INVITING TENDER

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## **PART A**

### **Instruction to Bidders:**

1. The quantity indicated in the BOQ / Price bid Part-C is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer.
2. The 'Total amount' mentioned in Part-B of the Price Bid corresponds to the entire Bill of Quantities (BOQ) given in Part -C of the Price Bid.
3. Bidders shall quote 'Total Amount' in the format for Price Bid available in the e-procurement portal. Bidders may also quote 'Total Amount' in the format given in Part -B of this document (Optional). Bidders shall only quote 'Total Amount' in the format given in PART -B of the price bid. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form / formats will not be entertained.
4. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part-C.
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.
6. Based on the quantities of individual item and the amount arrived in SI No: 4 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
7. Bidders 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.6 above.

**Part B: Format to quote Total Amount**

**Tender Specification BHEL:PSSR:SCT:1850 for Boiler & Aux  
at 5 X 800 MW Yadadri TPS**

**Total Amount for the entire Bill of Quantities(BOQ) given in Part C**

In Figures

In words

**Note :**

Bidders to quote Total Amount in this format given above, which shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.

**Date**

**SIGNATURE OF BIDDER WITH SEAL**

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1850 for Boiler & Aux  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
--	Erection, Testing & Assistance for commissioning and Trial Operation of Boiler & auxiliaries, RM, SCR, Ducts & Dampers and other incidental works as per the detailed description and nature of work enumerated in the Tender specification including supply of consumables, tools & tackles, equipments, all handling of materials at BHEL / Client's Store / Storage Yard, transportation to site, application of Insulation, supply and application of touch-up, preservation & final painting as detailed in the Tender specification for Package-A (Unit-1&3) or Package-B (Unit-2&4) of 5 X 800MW Yadadri TPS for TSGENCO at Veerlapalem Village, Dameracherla Mandal, Nalgonda Dist., Telangana State. This shall include all types of handling and transportation of materials from the site store sheds / Storage yard located at more than one location within the plant premises & outside plant boundary to place of erection including any extra work of modification / rectification that may arise during preassy, erection, testing and commissioning works which is incidental to normal erection works.	--		
1.1	BOILER, STRUCTURES	MT	36,270.324	.3295226
1.2	BOILER - PRESSURE PARTS	MT	20,196.652	.2432748
1.3	NON-PRESSURE PARTS	MT	18,165.688	.1758986
1.4	ROTATING EQUIPMENTS	MT	7,960.168	.0619823
1.5	ROTATING MACHINES HANDLING EQUIPMENTS	MT	147.2	.0011214
1.6	INSULATION - POURABLE & CASTABLE REFRACTORY	MT	540	.0040459
1.7	INSULATION - MINERAL WOOL	MT	2,428	.0299868
1.8	INSULATION - IRON COMPONENTS	MT	400	.0063425
1.9	INSULATION - ALUMINIUM SHEETS	MT	444	.0072205

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1850 for Boiler & Aux  
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2300.0	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		
A2301	Fabrication,erection and alignment of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc, connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 200 C for welding over 20 mm and upto 40 mm & 660 C for welding over 40 mm and upto 63 mm & 1100 C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. (Rate shall be exclusive of surface preparation ) (Structural steel for the above shall be supplied by BHEL free of cost as per the terms and conditions specified elsewhere in the contract)	--		
a	For Built up sections composed of Structural plates only (Grade E250) including stiffeners e.g. plated columns, girders, etc. (other than coal bunker)	MT	952	.0172525

**SIGNATURE OF BIDDER WITH SEAL**

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1850 for Boiler & Aux  
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	For built up section composed of rolled sections (Grade E250) or rolled sections (Grade E250) and plates (Grade E250) ncluding stiffeners (other than coal bunker)	MT	176	.0031895
c	For Coal Bunker (excluding liner) i.e. bunker wall, stiffeners, ring beam etc	MT	2,800	.0507425
d	For all other items (Grade E250) not covered above e.g. rolled sections, pipes, chequered plate etc	MT	352	.0063791
2302.0	Extra over ST NO. 2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2 ) and applying epoxy based zinc phosphate primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete.	--		
A2302	Extra over ST No. A2301 for surface preparation by blast cleaning of steel structures as per IS:1477 (Part 1 and 2) and applying epoxy resin based zinc rich primer as per IS:14589 in 2 coats, one at shop and second coat after erection, including touch-up painting etc all complete.	MT	3,852	.0145635
B2302	Extra over ST No A2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and applying coating of inorganic zinc silicate primer in one coat @ 65-75 micron DFT /coat at shop immediately after blast cleaning, including touch-up painting etc all complete.	MT	428	.0016182
A2305	Providing and applying two coats of epoxy paint with minimum 25 micron total dry film thickness (DFT) per coat of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 115 microns including protection and cleaning, scaffolding etc. all complete.	MT	4,280	.0160832
B2305	Providing and applying two coats of synthetic enamel paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 115 microns including protection and cleaning, scaffolding etc. all complete.	MT	0.8	.0000015

**Part C : Bill of Quantities**

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2307.0	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	--		
a	Minimum galvanisation of 610 g/sqm	MT	0.4	.0000236
A2308	Supplying, fabrication, erection and alignment of factory made welded grating units with mild steel conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	0.4	.0000181
A2309	Extra over above ST NO. A2301/A2308 for finishing the grating units with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of red oxide zinc-chromate primer all complete.	MT	0.4	.0000042
2311.0	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	KG	40	.0000019
2312.0	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	KG	80	.000004

**Part C : Bill of Quantities**

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2317.0	Supply, fabrication and erection of minimum 4 mm thick stainless steel liner of grade AISI-304; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel, fabrication detailed drawing etc.all complete. (The measurement for the item of stainless steel liner in hopper shall be based on the actual finished weight of SS liner over hopper)	MT	154	.0292406
2318.0	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of +/-50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
a	20 Tons	EACH	8	.0000778
b	25 Tons	EACH	8	.0000872
c	40 Tons	EACH	8	.0000935
d	50 Tons	EACH	4	.0000499
e	60 Tons	EACH	4	.000053
2319.0	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	470	.0011206
<b>TOTAL Weightage</b>				1.0