

TENDER SPECIFICATION BHEL PSSR SCT 1835

FOR

PACKAGE A:

Handling of Materials at BHEL/ Client's Stores/ Storage Yard and transportation to site of Erection, Erection, Testing & Assistance for commissioning and Trial Operation including supply and application of insulation, refractory, supply & application of final Painting etc. of Boiler & auxiliaries, Air Pre Heaters, Ducts & Dampers, Boiler Integral Piping, ESP, Gates, Duct support structures, structure for bunker, fans, bowl mills, Rotation Equipment's, Fuel Oil System auxiliaries, Auxiliary boiler & Auxiliaries and their insulation, etc. and Detailed Engineering, Fabrication, Erection of Bunker including initial and final painting along with supply & installation of items as per BOQ of Unit 1 of 2x660 MW Udangudi STPP, Tuticorin District, Tamil Nadu

PACKAGE B:

Handling of Materials at BHEL / Client's Stores / Storage Yard and transportation to site of Erection, Erection, Testing & Assistance for commissioning and Trial Operation including supply and application of insulation, refractory, supply & application of final Painting etc. of Boiler & auxiliaries, Air Pre Heaters, Ducts & Dampers, Boiler Integral Piping, ESP, Gates, Duct support structures, Structure for bunker, Fans, Bowl mills, Rotation Equipment's, Fuel Oil System auxiliaries, and their insulation, etc. and Detailed Engineering, Fabrication, Erection of Bunker including initial and final painting along with supply & installation of items as per BOQ of Unit 2 of 2x660 MW Udangudi STPP, Tuticorin District, Tamil Nadu

AT

**2X660 MW, UDANGUDI STPP,
TUTICORIN DISTRICT, TAMIL NADU**

PRICE BID

VOLUME –II



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035

PRICE BID

BHARAT HEAVY ELECTRICALS LIMITED

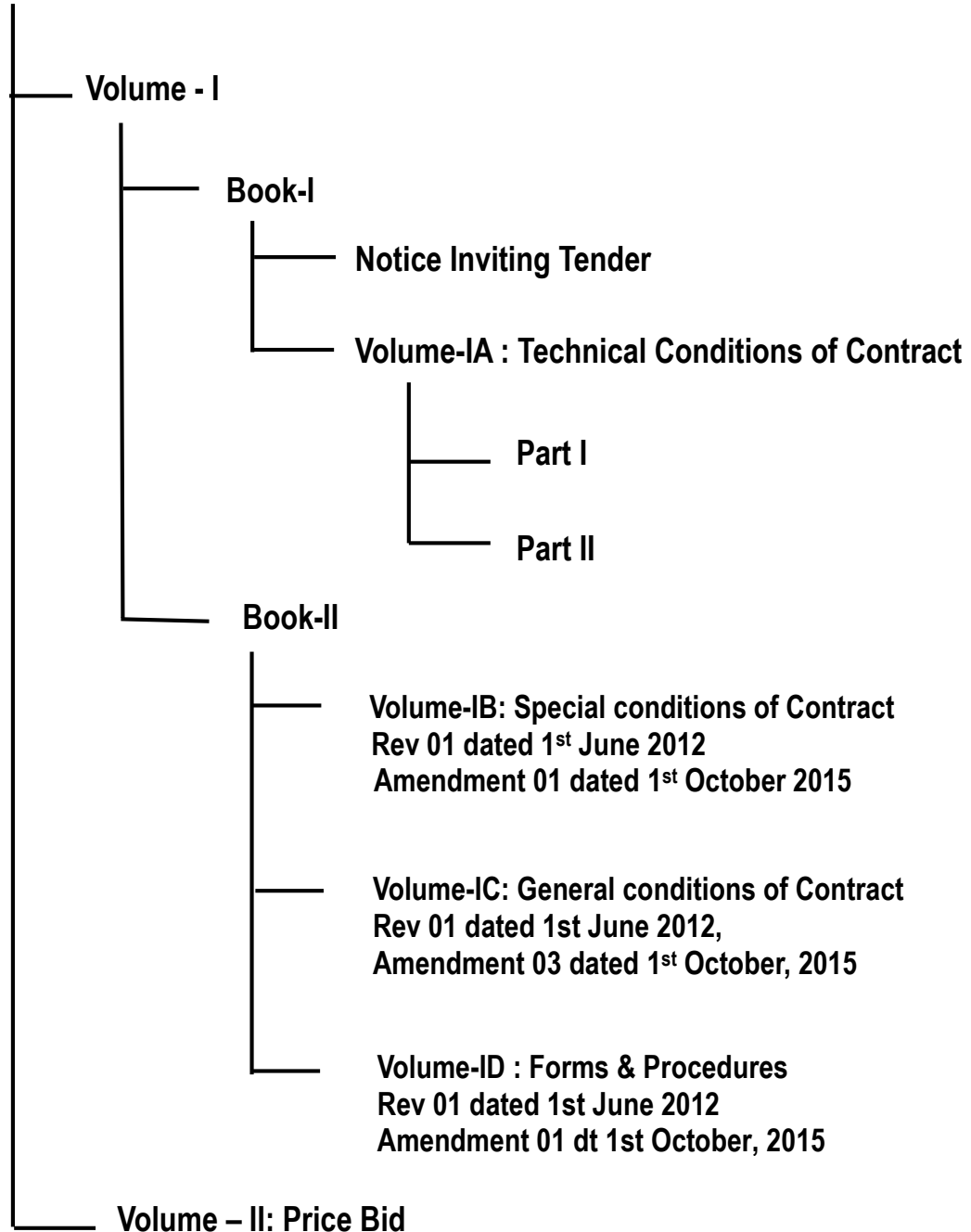
(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035.

TENDER SPECIFICATION CONSISTS OF

Tender Specification



PRICE BID

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PRICE BID

PART A

Instruction to Bidders:

1. The quantity for package A is indicated as 1835A in the BOQ / Price bid Part-C and quantity for package B is indicated as 1835B in the BOQ / Price bid Part-C. The quantity indicated in the BOQ / Price bid is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer.
2. Price Bid for Package A only is published in this price bid and is to be quoted by the bidder and the successful bidder against this quote will be awarded the contract for Package A.
3. Bidders shall quote 'Total Amount for Package A' 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).
Any other entry elsewhere in the price bid shall be treated as Null and Void.
4. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) for Package-A given in Part –C (1835A) of the Price Bid.
5. The ratio of the total amounts for Package A and Package B shall be 1 and 0.987447 (Explanatory statement: If the total amount of Package A is considered as 1, then the total amount of package B shall be considered as 0.987447)
6. Based on the awarded value of Package A, the value of Package B shall be arrived as below:
$$\text{Value of Package B} = 0.987447 \times \text{Awarded value of Package A.}$$
7. The quantities given in the price bid 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.
8. 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. Bidders to refer 1835A for Package A weightages and 1835B for Package B weightages.
9. 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.
10. Based on the quantities of individual item and the amount arrived in Sl. No: 9 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
11. 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 Sl No.10 above.

Part B: Format to quote Total Amount

**Tender Specification BHEL:PSSR:SCT:1835A for Boiler & Aux, ESP
at Udangudi Thermal Power Station**

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:1835A for Boiler & Aux, ESP
at Udangudi Thermal Power Station**

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
--	Erection, testing and Commissioning and Completion of trial operations of the Boiler & Aux boiler, Rotating Equipments, ESP auxiliaries, and its insulation including supply and application of final painting and Fabrication & Erection of Bunker along with initial and final painting for Unit 1 of Udangudi 2 x 660MW set as per the detailed description and nature of work enumerated in the Tender specification including supply of consumables, tools & tackles, equipments, all handling and transportation from BHEL/ Customers stores and other incidental works during preassembly, erection, testing and commissioning work, supply and application of touch-up, preservation & final painting as detailed in the Tender specification. This shall include all types of handling and transportation of materials from the site store sheds / Storage yard located at more than one location outside plant boundary to place of erection including any extra work of modification / rectification that may arise during erection, testing and commissioning works which is incidental to normal erection works.	--		
1.1	Boiler - Structures	MT	17,092.66	.293132
1.2	Boiler - Pressure Parts	MT	11,997.78	.2727963
1.3	Boiler - Non Pressure Parts (Boiler outlet funnel to ESP)	MT	4,282.27	.0782716
1.4	Boiler - Rotating Machines	MT	1,652.45	.0242881
1.5	Boiler - Handling Equipment	MT	78.91	.0011347
1.6	ESP	MT	6,764	.0865146
1.7	ESP - Non Pressure parts (ESP outlet funnel to Chimney)	MT	3,345.01	.0556128
1.8	Insulation - Castable & Pourable refractory	MT	252.9	.0049472
1.9	Insulation - Mineral Wool Mattress incl Acoustic insulation	MT	1,626.33	.0428548
1.10	Insulation - Fixing (Iron) Components/steel enclosures etc.	MT	228.33	.0079932

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1835A for Boiler & Aux, ESP
at Udangudi Thermal Power Station**

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
1.11	Insulation - Aluminium Sheets/Sealing compound	MT	182.36	.0067113
--	BUNKER	--		
2.1	Transportation, 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 including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection), 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 20 deg C for welding over 20 mm and upto 40 mm & 66 deg C for welding over 40 mm and upto 63 mm & 110 deg 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, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, 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 (BHEL to supply steel free of cost).	MT	1,495	.0604012

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1835A for Boiler & Aux, ESP
at Udangudi Thermal Power Station**

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
2.2	Blast cleaning by shot / metal blasting of steel structures to near white metal surface(Sa 2 1/2) as per SIS05-5900 and applying 2 coats of zinc silicate primer (one coat at shop and one coat after erection) instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete as per specification.	MT	1,495	.0119911
2.3	Providing and applying two coats of High built epoxy finish paint of approved brand over steel sections already having primer coats. Dry film thickness of each finish coat shall be 90 microns. The undercoat and finish coat shall be of different tint to distinguish the same from finish paint. The total dry film thickness with primer shall not be less than 300 microns. The item includes protection, cleaning, scaffolding, touch-up painting etc. all complete as per specification.	MT	1,495	.0099813
2.4	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	100	.0000106
2.5	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	100	.0000114
2.6	Supply, fabrication and erection of minimum 6 mm thick stainless steel liner of grade SS:409M on M.S. plate for inside surfaces cylindrical/conical portion 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 etc. all complete.	MT	100	.0419328
2.7	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 plus or minus 50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
2.7.1	20 Tons	Nos.	3	.0000647

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1835A for Boiler & Aux, ESP
at Udangudi Thermal Power Station**

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
2.7.2	25 Tons	Nos.	3	.000073
2.7.3	40 Tons	Nos.	6	.0001568
2.7.4	50 Tons	Nos.	6	.0001675
2.7.5	60 Tons	Nos.	6	.000179
2.7.6	100 Tons	Nos.	3	.0001112
2.8	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	150	.0006626
TOTAL Weightage				1.0

Part C : Bill of Quantities**Tender Specification BHEL:PSSR:SCT:1835B for Boiler & Aux, ESP
at Udangudi Thermal Power Station**

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
--	Erection, testing and Commissioning and Completion of trial operations of the Boiler & Aux boiler, Rotating Equipments, ESP auxiliaries, and its insulation including supply and application of final painting and Fabrication & Erection of Bunker along with initial and final painting for Unit 1 of Udangudi 2 x 660MW set as per the detailed description and nature of work enumerated in the Tender specification including supply of consumables, tools & tackles, equipments, all handling and transportation from BHEL/ Customers stores and other incidental works during preassembly, erection, testing and commissioning work, supply and application of touch-up, preservation & final painting as detailed in the Tender specification. This shall include all types of handling and transportation of materials from the site store sheds / Storage yard located at more than one location outside plant boundary to place of erection including any extra work of modification / rectification that may arise during erection, testing and commissioning works which is incidental to normal erection works.	--		
1.1	Boiler - Structures	MT	17,013.66	.2953501
1.2	Boiler - Pressure Parts	MT	11,855.34	.2728584
1.3	Boiler - Non Pressure Parts (Boiler outlet funnel to ESP)	MT	3,957.14	.0732146
1.4	Boiler - Rotating Machines	MT	1,636.64	.0243503
1.5	Boiler - Handling Equipment	MT	78.91	.0011486
1.6	ESP	MT	6,764	.087574
1.7	ESP - Non Pressure parts (ESP outlet funnel to Chimney)	MT	3,345.01	.0562938
1.8	Insulation - Castable & Pourable refractory	MT	220	.0043563
1.9	Insulation - Mineral Wool Mattress incl Acoustic insulation	MT	1,611.43	.0429821
1.10	Insulation - Fixing (Iron) Components/steel enclosures etc.	MT	221.38	.0078448

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1835B for Boiler & Aux, ESP
at Udangudi Thermal Power Station**

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
1.11	Insulation - Aluminium Sheets/Sealing compound	MT	181.03	.0067439
--	BUNKER	--		
2.1	Transportation, 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 including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection), 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 20 deg C for welding over 20 mm and upto 40 mm & 66 deg C for welding over 40 mm and upto 63 mm & 110 deg 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, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, 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 (BHEL to supply steel free of cost).	MT	1,495	.0611408

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1835B for Boiler & Aux, ESP
at Udangudi Thermal Power Station**

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
2.2	Blast cleaning by shot / metal blasting of steel structures to near white metal surface(Sa 2 1/2) as per SIS05-5900 and applying 2 coats of zinc silicate primer (one coat at shop and one coat after erection) instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete as per specification.	MT	1,495	.012138
2.3	Providing and applying two coats of High built epoxy finish paint of approved brand over steel sections already having primer coats. Dry film thickness of each finish coat shall be 90 microns. The undercoat and finish coat shall be of different tint to distinguish the same from finish paint. The total dry film thickness with primer shall not be less than 300 microns. The item includes protection, cleaning, scaffolding, touch-up painting etc. all complete as per specification.	MT	1,495	.0101035
2.4	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	100	.0000107
2.5	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	100	.0000116
2.6	Supply, fabrication and erection of minimum 6 mm thick stainless steel liner of grade SS:409M on M.S. plate for inside surfaces cylindrical/conical portion 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 etc. all complete.	MT	100	.0424463
2.7	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 plus or minus 50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
2.7.1	20 Tons	Nos.	3	.0000655

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1835B for Boiler & Aux, ESP
at Udangudi Thermal Power Station**

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
2.7.2	25 Tons	Nos.	3	.0000739
2.7.3	40 Tons	Nos.	6	.0001587
2.7.4	50 Tons	Nos.	6	.0001695
2.7.5	60 Tons	Nos.	6	.0001812
2.7.6	100 Tons	Nos.	3	.0001126
2.8	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	150	.0006707
TOTAL Weightage				1.0