



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 02

Ref: PSER:SCT:ABJ-B1183:TCN-02

Date: 10/05/2011

Sub	Tender change notice (TCN) 02	
Job	Package A:- Receipt , Handling at site , Erection , testing , commissioning , trial run , handing over of boiler , Rotating Machines and Duct, ESP , Critical Piping , Misc. Piping , Boiler Integral piping , Insulation & Final Painting etc. of Unit # 1 at 2x520 MW HNPCL/VIZAG Thermal Power Project . Package B:- Receipt , Handling at site , Erection , testing , commissioning , trial run , handing over of boiler , Rotating Machines and Duct, ESP , Critical Piping , Misc. Piping , Boiler Integral piping , Insulation & Final Painting etc. of Unit # 2 at 2x520 MW HNPCL/VIZAG Thermal Power Project .	
Ref	1.0	Tender no PSER:SCT:VIZ-B1192:11
	2.0	BHEL's NIT, vide ref no Ref: PSER:SCT:VIZ-B1192 Dated 25/04/2011
	3.0	BHEL's TCN-01 vide ref. no. PSER:SCT:VIZ-B1192:TCN-01 Dated 06/05/2011
	4.0	Other references (if any)

With reference to above, following points , relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 BHEL's clarification to Bidder's query as per Annexure-A to TCN-02.
- 2.0 Price schedule format **VOLUME-II (PACKAGE - A), Rev 01 & VOLUME-II (PACKAGE - B), Rev 01** has been revised as **VOLUME-II (PACKAGE - A), Rev 02 & VOLUME-II (PACKAGE - B), Rev 02** . Bidders are requested to submit their price in revised format only. Offer from bidders in superseded price schedules shall not be considered. Bidders are requested to furnish a declaration in techno-commercial offer that they have submitted their price bid in sealed envelope as per revised price schedule format **VOLUME-II (PACKAGE - A), Rev 02 & VOLUME-II (PACKAGE - B), Rev 02**.
- 3.0 Annexure-III (List of T&P to be provided by BHEL free of hire charges on sharing basis) of VOLUME-IF PACKAGE- A & B Page 58 of 139 shall be replaced by Annexure-III Rev-01.
- 4.0 Annexure-IV Rev-01 (List of T&P to be provided by contractor) shall be replaced by Annexure-IV Rev-02.
- 5.0 Revised 'No deviation certificate' is attached. Bidder to submit 'No deviation certificate' as per attached Format only.
- 6.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

ENGR (SCT)

Encl

- 1.0 Annexure-A to TCN-02
- 2.0 VOLUME-II (PACKAGE - A), Rev 02 & VOLUME-II (PACKAGE - B), Rev 02
- 3.0 Annexure-III Rev-01
- 4.0 Revised 'No deviation certificate' format.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 23211798/ 1691

ANNEXURE-A TO TCN-02
TENDER NO. PSER:SCT:VIZ-B1192:11
CLARIFICATION TO BIDDER'S QUERY

Sl. No.	Page No	Clause No	Subject	Bidders Queries	BHEL Clarification
01.			Price Schedule for Package – B	Please furnish us the price schedule for Package-B wherein Schedule of quantities are appearing.	Please Refer TCN-02
02.	3 of 139 (TCC)	3.1	TCC – Scope of work	Please confirm that material unloading part apart from Boiler Drum i.e. ceiling girders, mill base assembly, burner block, bottom ring header and APH centre sections of both the units shall also be part in Boiler erection contractor. We apprehend that above materials unloading shall be the part of Material Management Contractor.	As per tender, clause no. 3.1 of Vol-1F.
03.	25 of 139	34.2	TCC – Quantity Variation	Please confirm the quantity variation limit whether it is ±15% or ±30%.	Quantity variation limit is ±15%.
04.	96 of 139	2.2.3.26	Pre-commissioning & Commissioning Assistance	Please confirm the details of man-hour requirement for the following categories for pre-commissioning and commissioning activities. Electrician, Mill Wright Fitter, Fitter for ESP internal work Welder Rigger, Helper	As per tender.

ANNEXURE-A TO TCN-02
TENDER NO. PSER:SCT:VIZ-B1192:11
CLARIFICATION TO BIDDER'S QUERY

Sl. No.	Page No	Clause No	Subject	Bidders Queries	BHEL Clarification
				Supervisors	
05.	132 of 139	2.3.50.4.5 (VII)	Pre-commissioning & Commissioning Activities of various categories of manpower	Please confirm the month of deployment for the categories stipulated for commissioning assistance.	As per tender.
06.	135 of 139	7.7	Lining and Insulation work	Please confirm that bidder's scope of work of Cladding work is not related to TG equipment work.	As per tender, Lining and insulation work of TG aux equipment is also covered in the scope of contractor. Pl refer Annexure-I, Gr. VII (ESTIMATED WEIGHT OF INSULATION FOR VARIOUS ITEMS OF WORK) and Appendix-II of TCC.
07.	139 of 139	4.6	Passenger cum Goods elevator	Please confirm that Passenger cum Goods elevator shall be excluded from Bidders / Erection Contractor's scope of work.	<p>Passenger cum Goods elevator shall be provided by the contractor.</p> <p>However, payment for providing the same will be made separately, as per applicable item rate of the Price schedule .</p> <p>Pl. refer to the revised Price schedule, Vol-II, Rev 02, enclosed.</p> <p>The same has to be commissioned within around 5th month from the date of LOI i.e. during Boiler drum lifting stage.</p> <p><u>Payment terms against Passenger Elevator :</u></p> <p>a) The payment will be released in four (04) equal instalment as below (gross value of each instalment = quoted lumpsum rate against passenger elevator / 4)</p>

ANNEXURE-A TO TCN-02
TENDER NO. PSER:SCT:VIZ-B1192:11
CLARIFICATION TO BIDDER'S QUERY

Sl. No.	Page No	Clause No	Subject	Bidders Queries	BHEL Clarification
					<p>b) 1st instalment will be due in the month of the commissioning of the passenger elevator</p> <p>c) Subsequent instalment will be due within a gap of 4 months successively.</p> <p>All other clauses related to interim payment viz. 36.1.1, 36.1.2, 36.3 and 37.0 etc. of Vol-I, TCC including 5% retention shall also be applicable to above .</p>
08.	58 of 139		List of T&P to be provided by M/s. BHEL	Please confirm that BHEL's T&P shall be applicable for each unit and also confirm the quantity of Sl. No. 2 and 3 for each unit.	BHEL's T&P List to be provided free of cost as per Annexure-III, Rev 01 of TCC is applicable for each units and shall be provided to respective contractors optimally on sharing basis as per actual project requirement. Quantity of such T&P on sharing basis shall be as per the Annexure-III, Rev 01.
09.	21 of 139 and 58 of 139 (TCC)	20.1.1	Appendix – III	Annexure-III shall be replaced by Appendix – III and 75 MT Crane shall be deployed by M/s. BHEL for 2 months in continuous basis or break-up basis as and when required for individual unit.	Pl. refer the revised clause vide TCN 01.

PACKAGE-A	
VOLUME-II	
PRICE/RATE SCHEDULE, REV-02	
ERECTION, TESTING, COMMISSIONING, HANDING OVER ETC. OF BOILER & AUX, ESP, ROTATING MACHINES AND DUCT, CRITICAL PIPING, MISC. BOILER INTEGRAL PIPING, INSULATION, PAINTING ETC. FOR U#1 OF 2x520 MW HINDUJA NATIONAL POWER CORPORATION LTD., PAVALAVASA, VIZAG, ANDHRA PRADESH	
TENDER NO :- PSER:SCT:VIZ-B1192:11	
PREAMBLE	
01	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender as per NIT together with subsequent changes/ modifications etc thereto as applicable as on date of submission of price offer.
02	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
03	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
04	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc equipment, strengthening of roads/culverts/bridges etc including arranging all clearances etc required for carrying out different activities & tests, materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the tender document and this schedule.
05	The quantities of the various items mentioned in this schedule of items are approximate, based on the preliminary information and may vary to any extent or be deleted all together.
06	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing and leveling etc including fixing of grid pillars, benchmarks etc required for commencement of site activities. No separate payment will be made towards the same.
07	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English
08	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
09	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
10	For each rate schedule, the quoted overall price only should be considered for bid evaluation purpose & groupwise rates are being obtained only for facilitating pro-rata billing.
11	All works item wise shall be measured upon completion and paid for at the rates quoted & accepted.

**VOLUME-II (PACKAGE - A), Rev 02
(BOILER & AUX INCLUDING ESP, CRITICAL PIPING, INSULATION, PAINTING ETC)**

PACKAGE A - ERECTION, TESTING, COMMISSIONING, HANDING OVER ETC. OF BOILER & AUX, ESP, ROTATING MACHINES AND DUCT, CRITICAL PIPING, MISC. BOILER INTEGRAL PIPING, INSULATION, PAINTING ETC. FOR U#1 OF 2x520 MW HINDUJA NATIONAL POWER CORPORATION LTD., PAVALAVASA, VIZAG, ANDHRA PRADESH

VOLUME-II, TENDER NO :- PSER:SCT:VIZ-B1192:11

Bidders are requested to submit their price, only as sought under price schedule below :-

SL.NO	DESCRIPTION OF ITEM	QUANTITY	UNIT	UNIT RATE (In Rs)	TOTAL AMOUNT (IN Rs) (In figures & In Words)
		a		b	a x b
1.0	Group-I(Pressue Part)	5007	MT		
2.0	Group-II(Intergral and Trim piping)	460	MT		
3.0	Group-III(Non-Pressure Part)	11734	MT		
4.0	Group-IV(Rotating machines)	2830	MT		
5.0	Group-V(ESP)	8106	MT		
6.0	Group -VI (Piping etc.)				
6.1	P-91 PIPINGS INCLUDING ASSOCIATED VALVES AND OTHER FITTINGS LIKE FLOW NOZZ., ORIFICE, TRAPS ETC.	172	MT		
6.2	OTHER ALLOY STEEL PIPINGS INCLUDING ASSOCIATED VALVES AND OTHER FITTINGS LIKE FLOW NOZZ., ORIFICE, TRAPS ETC.	658	MT		
6.3	CARBON STEEL PIPINGS INCLUDING ASSOCIATED VALVES AND OTHER FITTINGS LIKE FLOW NOZZ., ORIFICE, TRAPS ETC.	973	MT		
6.4	STRUCTURES / HANGERS & SUPPORTS	580	MT		

**VOLUME-II (PACKAGE - A), Rev 02
(BOILER & AUX INCLUDING ESP, CRITICAL PIPING, INSULATION, PAINTING ETC)**

PACKAGE A - ERECTION, TESTING, COMMISSIONING, HANDING OVER ETC. OF BOILER & AUX, ESP, ROTATING MACHINES AND DUCT, CRITICAL PIPING, MISC. BOILER INTEGRAL PIPING, INSULATION, PAINTING ETC. FOR U#1 OF 2x520 MW HINDUJA NATIONAL POWER CORPORATION LTD., PAVALAVASA, VIZAG, ANDHRA PRADESH

VOLUME-II, TENDER NO :- PSER:SCT:VIZ-B1192:11

Bidders are requested to submit their price, only as sought under price schedule below :-

6.5	Fabrication & Erection of Boiler structure including miscellaneous Approach/Operation platform (material shall be supplied by BHEL free of cost)	300	MT		
7.0	Insulation	3023	MT		
8.0	Lump sum price for providing assistance for conducting PG test.	1	NO		
9.0	Lump sum price for providing Passenger -cum-Goods elevator as per requirement.	1	NO		
TOTAL (in Rs.)					

NOTES

1.0	FOR DETAILS OF PGs COVERED UNDER DIFFERENT GROUPS, PLEASE REFER TO ANNEXURE (WEIGHT SCHEDULE).
2.0	BESIDES ABOVE PRODUCT GROUP, THERE IS LIKELIHOOD OF ADDITION OF NEW PG UNDER THE ABOVE GROUP HEADS DUE TO RELEASE OF SOME ITEMS INTEGRAL TO BOILER & AUX. THE QUOTED RATES SHALL BE APPLICABLE FOR SUCH PGs ALSO WITHIN THE STIPULATED VARIATION LIMIT.
3.0	Any item as per scope of work if not included in the price quoted above and shown separately will not be taken into cognizance and the offer shall be liable for rejection.

PACKAGE-B	
VOLUME-II	
PRICE/RATE SCHEDULE, REV-02	
ERECTION, TESTING, COMMISSIONING, HANDING OVER ETC. OF BOILER & AUX, ESP, ROTATING MACHINES AND DUCT, CRITICAL PIPING, MISC. BOILER INTEGRAL PIPING, INSULATION, PAINTING ETC. FOR U#2 OF 2x520 MW HINDUJA NATIONAL POWER CORPORATION LTD., PAVALAVASA, VIZAG, ANDHRA PRADESH	
TENDER NO :- PSER:SCT:VIZ-B1192:11	
PREAMBLE	
01	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender as per NIT together with subsequent changes/ modifications etc thereto as applicable as on date of submission of price offer.
02	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
03	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
04	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc equipment, strengthening of roads/culverts/bridges etc including arranging all clearances etc required for carrying out different activities & tests, materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the tender document and this schedule.
05	The quantities of the various items mentioned in this schedule of items are approximate, based on the preliminary information and may vary to any extent or be deleted all together.
06	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing and leveling etc including fixing of grid pillars, benchmarks etc required for commencement of site activities. No separate payment will be made towards the same.
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08	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
09	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
10	For each rate schedule, the quoted overall price only should be considered for bid evaluation purpose & groupwise rates are being obtained only for facilitating pro-rata billing.
11	All works item wise shall be measured upon completion and paid for at the rates quoted & accepted.

**VOLUME-II (PACKAGE -B), Rev 02
(BOILER & AUX INCLUDING ESP, CRITICAL PIPING, INSULATION, PAINTING ETC)**

PACKAGE B - ERECTION, TESTING, COMMISSIONING, HANDING OVER ETC. OF BOILER & AUX, ESP, ROTATING MACHINES AND DUCT, CRITICAL PIPING, MISC. BOILER INTEGRAL PIPING, INSULATION, PAINTING ETC. FOR U#2 OF 2x520 MW HINDUJA NATIONAL POWER CORPORATION LTD., PAVALAVASA, VIZAG, ANDHRA PRADESH

VOLUME-II , TENDER NO :- PSER:SCT:VIZ-B1192:11

Bidders are requested to submit their price, only as sought under price schedule below :-

SL.NO	DESCRIPTION OF ITEM	QUANTITY	UNIT	UNIT RATE (In Rs)	TOTAL AMOUNT (IN Rs) (In figures & In Words)
		a		b	a x b
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6.0	Group -VI (Piping etc.)				
6.1	P-91 PIPINGS INCLUDING ASSOCIATED VALVES AND OTHER FITTINGS LIKE FLOW NOZZ., ORIFICE, TRAPS ETC.	172	MT		
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6.3	CARBON STEEL PIPINGS INCLUDING ASSOCIATED VALVES AND OTHER FITTINGS LIKE FLOW NOZZ., ORIFICE, TRAPS ETC.	973	MT		
6.4	STRUCTURES / HANGERS & SUPPORTS	580	MT		

**VOLUME-II (PACKAGE -B), Rev 02
(BOILER & AUX INCLUDING ESP, CRITICAL PIPING, INSULATION, PAINTING ETC)**

PACKAGE B - ERECTION, TESTING, COMMISSIONING, HANDING OVER ETC. OF BOILER & AUX, ESP, ROTATING MACHINES AND DUCT, CRITICAL PIPING, MISC. BOILER INTEGRAL PIPING, INSULATION, PAINTING ETC. FOR U#2 OF 2x520 MW HINDUJA NATIONAL POWER CORPORATION LTD., PAVALAVASA, VIZAG, ANDHRA PRADESH

VOLUME-II , TENDER NO :- PSER:SCT:VIZ-B1192:11

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SL.NO	DESCRIPTION OF ITEM	QUANTITY	UNIT	UNIT RATE (In Rs)	TOTAL AMOUNT (IN Rs) (In figures & In Words)
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6.5	Fabrication & Erection of Boiler structure including miscellaneous Approach / Operation platform (material shall be supplied by BHEL free of cost)	300	MT		
7.0	Insulation	3023	MT		
8.0	Lump sum price for providing assistance for conducting PG test.	1	NO		
9.0	Lump sum price for providing Passenger -cum-Goods elevator as per requirement.	1	NO		
TOTAL (in Rs.)					

NOTES

1.0	FOR DETAILS OF PGs COVERED UNDER DIFFERENT GROUPS, PLEASE REFER TO ANNEXURE (WEIGHT SCHEDULE).
2.0	BESIDES ABOVE PRODUCT GROUP, THERE IS LIKELIHOOD OF ADDITION OF NEW PG UNDER THE ABOVE GROUP HEADS DUE TO RELEASE OF SOME ITEMS INTEGRAL TO BOILER & AUX. THE QUOTED RATES SHALL BE APPLICABLE FOR SUCH PGs ALSO WITHIN THE STIPULATED VARIATION LIMIT.
3.0	Any item as per scope of work if not included in the price quoted above and shown separately will not be taken into cognizance and the offer shall be liable for rejection.

ANNEXURE – III , Rev01

LIST OF T&P TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS FOR EACH UNIT

1. All necessary Cranes(more than 75 T capacity) as required for erection of Boiler, ESP and other Boiler Auxiliaries during the execution period on sharing basis as per actual project work requirement, detailed below –

SL NO	DESCRIPTION & CAPACITY OF T&P	QUANTITY	REMARKS
01	High capacity crane of 600MT capacity/equivalent crane with ringer	01 No	On sharing basis for limited period during the erection of structures like upper tiers of boilers, ceiling girders, roof top structures, and other structure etc for which high capacity crane is required.
02	Mid range crawler/ tyre mounted cranes (capacity 200 MT and above)	01 No	On sharing basis as per requirement during the execution period
03	Crawler/ tyre mounted cranes. (100-150 MT)/equivalent	01 No	On sharing basis as per requirement during the execution period
04	EOT Crane (105T / 15 T capacity) in Power House	01 No	On sharing basis as per requirement during the execution period.
05	Tower crane – Tower height 110/120 M, boom/jib length – 60 M, Load carrying capacity at tip – 6.2 MT	1 No	On sharing basis as per requirement during the execution period
06	Hydraulic test/ pressurizing pump: 0-450/600 Kg / cm ²	01 No	With necessary electrical starter
07	Acid/ chemical cleaning pump: 200 TPH/equivalent with control panel	05 Nos	----Do---
08	Acid/ chemical Injection pump	03 Nos	---Do----
09	HUCK –BOLTING MACHINE	01 No	Only M/c with hydraulic oil
10	Induction heating machines	04 nos	On sharing basis as per requirement

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Package A:- Receipt , Handling at site , Erection , testing , commissioning , trial run , handing over of boiler , Rotating Machines and Duct, ESP , Critical Piping , Misc. Piping , Boiler Integral piping , Insulation & Final Painting etc. of Unit # 1 at 2x520 MW HNPCL/VIZAG Thermal Power Project . Package B:- Receipt , Handling at site , Erection , testing , commissioning , trial run , handing over of boiler , Rotating Machines and Duct, ESP , Critical Piping , Misc. Piping , Boiler Integral piping , Insulation & Final Painting etc. of Unit # 2 at 2x520 MW HNPCL/VIZAG Thermal Power Project .	
Ref	1.0	Tender no PSER:SCT:VIZ-B1192 :11
	2.0	BHEL's NIT, vide ref no PSER:SCT:VIZ-B1192 Dated 25/04/2011
	3.0	BHEL's TCN-01 vide ref. no. PSER:SCT:VIZ-B1192:TCN-01 Dated 06/05/2011
	4.0	BHEL's TCN-02 vide ref. no. PSER:SCT:VIZ-B1192:TCN-02 Dated 10/05/2011
	5.0	Other references (if any).

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized
representative of the bidder)

ANNEXURE – IV , Rev 02

MAJOR TOOLS AND PLANTS TO BE DEPLOYED BY THE CONTRACTOR FOR HANDLING UNLOADING /HANDLING AT PREASSEMBLY AREA, ERECTION AND COMMISSIONING ETC.

SL NO	DESCRIPTION OF EQUIPMENTS	CAPACITY	MINIMUM QUANTITY
01	Crawler cranes	75 T	02 (two) nos 1 st crane to be deployed with in 15 days from the date of start of work and 2 nd crane to be deployed with in 75 days from date of start of work.
02	Tyre mounted/Crawler cranes with telescopic boom/lattice boom	40 T	02 (two) nos 1 no to be deployed with in 15 days from date of start of work. Another 1 no to be deployed with in 75 days from date of start of work.
03	Pick and carry cranes	18 T/25 T	2(two) nos 1 no to be deployed with in 15 days from date of start of work. 1 no to be deployed with in 45 days from date of start of work.
04	Pick & carry tyre mounted mobile crane	10 T/ 12 T/ 14 T	06 (six) nos. 2 nos with in 15 days from date of start of work and bal. progressively with in 75 days from date of start of work.
05.1	Trailer	40 T	1 no (with in 75 days from date of start of work)
05.2	Tractor trolley/ trailer	25 T	04 (four) nos. 1 st trailer to be deployed with in 15 days from date of start of work and 2nd Trailer with in 45 days from date of start of work and bal. with in 100 days from date of start of work.
06	Truck	9 T/ 12 T capacity	04 (four) nos. 02 (two) nos. within 15 days. Balance within 75 days.
07	Wheel mounted lorry / dip trolley	10 T	As per requirement
08	Air compressor (electric) – 7	100 psi/ 80 cfm	As per requirement

	kg/cm ²		
09	Tig welding set	As per requirement	40 set
10	Plasma cutting m/c	10 mm	As per requirement
11	Pre-heating/ stress relieving set (heating control panel, cables, heating elements etc.)	As per requirement	20
12	Radiography arrangement including the source.	IR 192 /cobalt 60	As per requirement
13	Radiography film viewer	As per requirement	3
14	High frequency unit for TIG welding	As per requirement	5
15	Digital Temperature indicator	As per requirement	20
16	Infrared sensor for Temperature detector	As per requirement	5
17	RECORDABLE ULTRASONIC TEST EQUIPMENT (USM GO or higher version to meet the requirements)	As per requirement	2
18	GAS BURNER ARRANGEMENT	As per requirement	2
19	PORTABLE HARDNESS TESTER	EQUOTIP OR MICRODUR MAKE	As per requirement
20	SPOT WELDING MACHINNE	As per requirement	As per requirement
21	MOTORISED PIPE BENDING MACHINE FOR BENDING PIPES UPTO 100Nb, thickness 12 mm	AS REQD.	As per requirement
22	Electro-hydraulic pipe bending machine.	For up to 100 mm NB pipes	As per requirement
23	Pipe bending machine – hand operated	Up to 50 mm NB pipes	As per requirement
24	Pipe chamfering machine	For machine pipe dia upto 800 mm	As per requirement
25	Pneumatic / Electric drive power hackshaw for pipe cutting	As per reqmnt	Minimum 4 nos.

26	Portable pipe cutting & chain machine	As per reqmnt	As per requirement
27	DG set 250 KVA	(to cater minimum 10 nos. Welding generators, required lighting and small drives like grinding machines etc.)	1 set
28	Welding generator (electric & diesel)	300 amps	As per requirement (minimum 175 nos during peak requirement)
29	3 phase distribution board with complete set up for drawl of construction power.	600 amp	As per requirement
30	Electric cable for drawl & distribution of construction power	As per site requirement	As per requirement
31	Semi-automatic welding m/c		Min 4 nos.
32	Dehumidifier for Electrode Storage room		Min 1 set
33	Baking oven and holding oven with thermostat and temperature gauge for baking coated welding electrodes	As per requirement	As per requirement
34	Portable oven for coated welding electrodes	As per requirement	As per requirement
35	Motorised megger	As per requirement	03 set
36	Strand jacks with ropes, guides, anchors, hydraulic drive unit including control panel complete in all respect for drum lifting	As per requirement	01 set
37	Winches (electric) (winches also includes wire ropes) Winches(Hand operated)	10 T 05 T 03 T Others 1 T	Minimum 02 nos Minimum 14 nos Minimum 06 nos As per requirement As per requirement
38	Hydraulic jacks	100 T	04 nos

		50 T Others	04 nos As per requirement
39	1 sec total station		02 nos
40	Pneumatic /Electrical Torque wrenches (spec 600 ft lb)	600 ft-lb (up to min M 64 size)	06 nos
41	Mechanical torque wrench	750 ft-lb	06 nos
42	Pipe Beveling Machine	As per requirement	As per requirement
43	Special slings and deshakles for unloading drum and lifting of ceiling girder and handling ODC consignments		As per requirement.
44	Aluminium sheet clad Profile making machine	As per requirement	As per requirement
45	Hand Tools, Cutting Tools, grinding machines etc.	As per requirement	As per requirement
46	Nibbling machine	As per requirement	As per requirement
47	Shearing machine	As per requirement	As per requirement
48	Sky climber	As per requirement	As per requirement
49	Man lifter hydraulic platform – 60 M height, maximum platform length – 10M (Carrying capacity – 8 persons, appx. 1.5 MT)	For WW panel alignment & welding	2 nos.
50	Dewatering pump with high pressure hose	For dewatering during rainy season	1 No.
51	Plotter & Xerox machine	As per requirement	1 each

Note

1. The above major T&P list is indicative only. Additional T & Ps, if required have to be mobilized by you within the quoted/accepted rate.
2. The list as per Annexure-IV is applicable for each unit.