



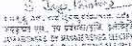

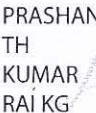




BHEL- ISG, BANGALORE 	Technical Enquiry Specification FOR PACKAGE –C Wagon Tippler, Side Arm Charger & Apron Feeder for Coal Handling Plant & Limestone Handling Plant for 3x800MW Patratu Thermal Power Project.	DOCUMENT NUMBER
	Customer : Patratu Vidyut Utpadan Nigam Ltd.	IS-1-17-2005/WT/PKG –C/ RE

TECHNICAL ENQUIRY SPECIFICATION
Of MACHINE PACKAGE
PACKAGE –C: Wagon Tippler, Side Arm Charger & Apron feeder
For 3 x 800 MW Patratu TPS
Patratu Vidyut Utpadan Nigam Limited (PVUNL)




	Prepared By	Checked by	Approved by
Mechanical	 SANDEEP SADU BHEL ISG, BANGALORE 2022.09.02 13:44:22 +05'30' Sandeep Sadu	 Digitally signed by INDRAJIT DEY DN: cn=INDRAJIT DEY, o, ou=BHEL ISG, email=IDEY@BHELIN, c=IN Location: BHEL ISG BANGALORE Date: 2022.09.02 13:47:38 +05'30' Indrajit Dey	 Digitally signed by RS PUJARI DN: cn=RS PUJARI, o=BHEL, ou=BHEL ISG, email=rs@bhel.in, c=IN Date: 2022.09.02 16:26:38 +05'30' R. S. Pujari
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A. PROJECT INFORMATION:

Present proposal is for setting up 3 x 800 MW NTPC Patratu Thermal Power Station, for Patratu Vidyut Utpadan Nigam Limited (PVUNL) with all the facilities as specified in the NIT. General information related to the project and site is available in **Annexure-1**, which has been enclosed along with this enquiry specification.

Bidder to note that civil & structural design & corresponding drawings of wagon tippler complex as listed in **Annexure-24** have been released for construction (RFC) by BHEL. Civil execution is under progress at Patratu site based on these design & RFC drawings.

Bidder to thoroughly study these design & RFC drawings and visit this project site to study civil works already completed **prior to quoting for this tender** and bidder to accordingly select & offer their machines/ equipment strictly adhering and matching with the arrangement and load data considered in the wagon tippler complex civil & structural RFC drgs.

Further, bidder to ensure and confirm (declaration to be given in **Annexure-28 and Annexure-26**) that their offered machines w.r.t. design & configuration do not call for any changes/ modification/ re-work in the wagon tippler complex civil & structural RFC drgs. which can potentially disrupt the continuity of civil execution at site (i.e. civil works already completed or under progress or to be taken up progressively), any loss of time in overall execution which can affect the timeline given in project time schedule.


B. BROAD SCOPE:

It is not the intent to list out complete scope hereunder. However, broad scope shall include but not limited to the following:

B.1 BROAD SCOPE OF SUPPLY:

WAGON TIPPLER, SIDE ARM CHARGER & APRON FEEDER MACHINES FOR COAL & LIMESTONE APPLICATION

Sl no	Item description	Quantity	Remarks
SUPPLY of WAGON TIPPLER, SIDE ARM CHARGER & APRON FEEDER MACHINES comprising of design (i.e. preparation and submission of drawing /documents including As Built" drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection & testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles, mandatory spares ,spares for erection, startup and commissioning as required, fill of lubricants & consumables and till COD of the unit, forwarding, proper packing, shipment and delivery at site for project and package complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order.			
1	Complete side discharge Wagon tippler with integral weigh bridge, all accessories, complete drives system and associated electrical and control & instrumentation equipment along	2 sets	<ul style="list-style-type: none"> • DFC 25 type Wagons @ 25 Tips /hr. • As per latest RDSO norms • Direct Hydraulic Drive without gearbox


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	with startup and commissioning spares as applicable as per latest RDSO norms and NIT specification		
2	Complete Side arm charger complete with drives, all accessories and associated electrical and control & instrumentation equipment along with startup and commissioning spares as applicable as per latest RDSO norms as applicable as per latest RDSO norms and NIT specification	2 sets	<ul style="list-style-type: none"> To haul a full rake of 58 nos. DFC25 wagons while carrying coal To haul a full rake of 58 nos. DFC25 wagons while carrying Limestone Direct Hydraulic Drive without gearbox.
3	Apron feeder with dribble conveyor complete with drives and associated electrical and control & instrumentation equipment along with startup and commissioning spares per NIT specification.	2 sets	Apron Feeder: 2200 MTPH rated / 2420 MTPH design while feeding coal. Apron Feeder: 1200 MTPH rated / 1320 MTPH design while feeding limestone Dribble Conv. :200 MTPH suitable for above apron feeder
4	Mandatory spares (mechanical, electrical and C&I)	1 lot	As per Annexure-7


Note:-Bidders to note that WAGON TIPPLER, SIDE ARM CHARGER APRON FEEDER & dribble conveyor machines envisaged shall be used for both coal & limestone application so bidder to design suitably to meet the variation in feeds and type of material i.e. while conveying coal and limestone.

B.2 BROAD SCOPE OF SERVICES:

SN	Description	Quantity
1.	Installation Services for all WAGON TIPPLER, SIDE ARM CHARGER & APRON FEEDER MACHINES including all equipment/sub- systems as per scope defined in NIT specification comprising of receipt, unloading, handling, transportation & storage at site, Construction of Stores at site (Open & Closed), lifting/shifting to closed/open storage, in-site transportation, to make approach road wherever required, Round the clock security at open storage yard , closed storage shed & erected material till completion of work, assembly, complete Erection, alignment, carrying out Pre-Commissioning, Commissioning, trial run at site, Touch- Up painting at site after erection and carrying out Performance Guarantee Tests, Reliability Test Run, Functional/Demonstration tests at site (As applicable obtaining Provisional Acceptance Certificate (PAC), Final Acceptance Certificate (FAC) and handing over of the equipment & sub- systems for WAGON TIPPLER, SIDE ARM CHARGER & APRON FEEDER MACHINES complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification, amendment	01 lot

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SN	Description	Quantity
	& agreements till placement of order.	
2.	<p>Construction of open storage yard and closed storage shed:</p> <p>(a) Closed storage shed: Construction of temporary closed covered storage shed for storage & preservation of all supplied material for this package (including free issue items) with minimum dimension - length 12m x width 10m x height 8m) with :</p> <p>1) brick wall construction, concrete flooring, sloped roof, rolling shutter, RCC column with max. span of 6 meters, RCC beams at every 3m height from finished floor level, brick infill up to total height of shed</p> <p>(OR)</p> <p>2) With bolted RCC column foundation, plinth beams, concrete flooring, steel structure with roof truss and covered with color-coated sheets in all sides, rolling shutters. Windows and access doors shall be provided and it shall be in the scope of bidder.</p> <p>(b) Open storage yard: Levelled and graded area will be allotted for construction of Open storage yard. Bidder shall make ready open storage yard suitably to obtain storage clearance from customer. Bidder shall also consider fencing/illumination of open storage and site fabrication area as and when allocated at site.</p>	01 lot
3.	<p>TRAINING MODULE for MACHINES COMPRISING FOLLOWING ASPECT:</p> <p>Product design</p> <ul style="list-style-type: none"> - Basic design features - Theory & principle of operation - Latest technological trends in <p>Coal handling plant and design Plant Visit</p> <ul style="list-style-type: none"> - Testing facilities - Operational feedback - O&M history/problems related to machines and plant Visit to Manufacturer’s Work - Manufacturing process of Coal handling equipments Operation & Maintenance of Plant - Trouble shooting and fault analysis - Familiarization of special maintenance techniques - Special tool and tackles familiarization 	01 lot

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SN	Description	Quantity
4.	Operation & Maintenance of wagon tippler, side arm charger & apron feeder machines	60 man shifts

Scope for this package bidder shall include **Design, Supply and Erection, testing & Commissioning and O&M** of equipment complete with drives, electrics and C&I system as per enclosed NTPC Patratu NIT specifications, amendments & clarifications and record notes of discussion as enclosed with this specification for this package.

Design: Includes basic engineering, detailed engineering, preparation and submission of engineering & civil assignment drawings/ calculations/ datasheets/ quality assurance documents/ field quality plans, as built drawings, commissioning procedures, operation & maintenance manuals, Performance Guarantee test procedures and obtaining approval from Customer / Customer's Consultant / BHEL. Bidder to note that civil & structural design & corresponding drawings of wagon tippler complex as listed in Annexure-24 have been released for construction (RFC) by BHEL. Civil execution is under progress at Patratu site based on these design & RFC drawings. Bidder to thoroughly study these design & RFC drawings prior to quoting for this tender and bidder to accordingly select & offer their machines/ equipment strictly adhering and matching with the arrangement and load data considered in the wagon tippler complex civil & structural RFC drgs.

Supply: Includes manufacturing/ fabrication, shop floor testing, stage inspections, final inspections, shop floor painting, packing & transportation to site, customs clearance/ port clearance and any other statutory clearances, receipt and unloading at site.


Erection and Commissioning: Includes preparation of storage yard, preparation/construction of covered shed, storage, security, site handling, shifting to erection location, erection, testing & commissioning, trial operation, preparation of protocols, Statutory clearance from electrical inspectorate and getting signed from end customer, final painting at site after erection and satisfactory completion of Performance Guarantee Tests, training of customer's O&M personnel and handing over to the end customer until satisfactory completion and written confirmation from the end customer.

Operation & maintenance for equipment and system under the scope of this package shall be in bidder's scope as defined elsewhere in this specification.

C. LIMITING GUARANTEE POWER

Total power consumption at the input terminals of all the drive motors when wagon tippler, side arm charger, dribble conv & apron feeder are in operation shall be limited to following figures, when the equipment is operating at rated/guaranteed capacity.

SN.	Item	Total Limiting value in kW
1	• Total consumed power of all the working drive motors associated with wagon tippler, side arm charger , dribble conveyor & apron feeder	2 x 209 kW= 418KW with duty factor of 0.5 per

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machine and its accessories when 2 nos. wagon tippler, side arm charger apron feeder & dribble conveyor (for coal application) are operating at guaranteed capacity (DFC 25 type Wagons @ 25 Tips /hr.) as a part of a system.	machine
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D. PRESENT CONSTRUCTION STATUS OF WAGON TIPPLER COMPLEX:

1. Raft at (-) 26.25 M is completed
2. Wall up to (-) 18.438 M level is completed
3. Floor slab at (-) 18.438 M level is completed
4. Wall lift above(-)18.438 M level work in progress

E. DESIGN PARAMETERS FOR WAGON TIPPLER, SIDE ARM CHARGER & APRON FEEDER MACHINES:


1. Following civil and structural drawings are enclosed at Annexure-24. **So bidder to study these RFC drawings thoroughly prior to quoting for this tender. No change in RFC drawings will be entertained by BHEL.**

SI No	BHEL Drawing No	NTPC Drawing No	Drawing Title
1	IS-1-GA-843-103-C035	9585-001-155-PVC-C-048	WAGON TIPPLER -1 : Excavation Drawing
2	IS-1-GA-843-103-C037	9585-001-155-PVC-C-050	WAGON TIPPLER -1 : Civil GA of Plans
3	IS-1-GA-843-103-C038	9585-001-155-PVC-C-051	WAGON TIPPLER -1 : Civil GA of Elevations
4	IS-1-RC-843-103-C039	9585-001-155-PVC-C-052	WAGON TIPPLER -1 : RC Details of Raft
5	IS-1-RC-843-103-C040	9585-001-155-PVC-C-053	WAGON TIPPLER -1 : RC Details of Walls & Counterforts
6	IS-1-RC-843-103-C041	9585-001-155-PVC-C-054	WAGON TIPPLER -1 : RC Details of Floor Beams
7	IS-1-RC-843-103-C042	9585-001-155-PVC-C-055	WAGON TIPPLER -1 : RC Details of Hopper
8	IS-1-RC-843-103-C043	9585-001-155-PVC-C-056	WAGON TIPPLER -1 : RC Details Side Arm Charger
9	IS-1-GA-843-103-C044	9585-001-155-PVC-C-057	WAGON TIPPLER -1 : GA of Hopper Grating
10	IS-1-GA-843-103-C046	9585-001-155-PVC-C-059	WAGON TIPPLER -1 : Sections and Elevation Details of Shed
11	IS-1-GA-843-103-C047	9585-001-155-PVC-C-060	WAGON TIPPLER -1 : Side Runners and Purlin Details of Shed
12	IS-4-DC-843-103-C036	9585-001-155-PVC-U-049	WAGON TIPPLER 1 & 2 - DESIGN OF UNDERGROUND STRUCTURE

2. Bidder shall refer Section-VI, Part B, Sub-Section - A23, page no. 34 to 42 of 121 and page no. 91 to 92 of 121 for WT, SAC & AF and other relevant clauses/ technical specifications for for WT, SAC & AF machines.


3. Data Sheet:

WAGON TIPPLER MACHINE	
GENERAL	
Wagon Type	Standard broad gauge, 4 axled wagons as per RDSO standard and design used by Indian Railways to move coal
Moving Profile	As per IR norms.

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Rail Gauge	1676 mm.
Weigh bridge	Load cell type
Duty	Continuous 24 hrs.
DESIGN & CONSTRUCTION	
Wagon Tippler Hopper Construction	RCC Construction
Hopper capacity	250 Te
No. of openings	One (1)
Angle of repose of coal wagon tippler hopper sizing for	37°
Lining	50 mm thick guniting.
Wagon Tippler Type	
Wagon Tippler Type	Side Discharge type
Tipping angle	not more than 160°
Duty Requirement	Continuous operation
Cradle	Heavy welded steel plate construction trunion mounted.
Driving Gear	
(i) Racks	Cast steel rack sections bolted to end sectors.
(ii) Pinion	Multiple pinions meshing with rack.
Rail Table	
Rail Table	Rolled steel joints with steel rails mounted on it.
Drive	Direct Hydraulic Drive without gearbox
Brake	Integral with hydraulic drive
Clamping Top & side stops	Hydraulically operated
SIDE ARM CHARGER	
Design & Construction Requirements	
No. of wagons to be handled By each side arm charger at a time	58 (DFC 25)
Arm	Robust construction either of cast steel or heavy duty fabricated steel.
Arm Drive	Hydraulic cylinder
Carriage Frame	Single fabrication assembly.
Travel Carriage drive	
Motor	Direct Hydraulic Drive without gearbox
Travel brake	Integral part of hydraulic motor
Bearings for sheaves	Anti-friction bearings
APRON FEEDER	
Angle of Installation	Horizontal
Chain Link	Forged alloy Steel
Apron pan	MS fabricated with wear resistant plate or special alloy steel
Traction wheel :	Cast Steel
Rollers :	Forged Alloy Steel
Drive	VVVF

4. Bidder's scope shall also include supply of mandatory spares, start-up & commissioning spares. Applicable spares for equipment in this package to be considered by the bidder. Mandatory spares list shall be as per ANNEXURE-7.

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5. Bidder shall also furnish the list of recommended spares for three years normal operation along with the offer.
6. Rail & its fixing over wagon tippler table top are included in bidder's scope of supply and E&C.
7. Rack, Rail & its fixing for side arm charger are included in bidder's scope of supply and E&C.
8. Track stop, wheel grippers etc. are included in bidder's scope of supply and E&C.
9. Belting for dribble conveyor are included in bidder's scope of supply and E&C.
10. Bidder's scope shall also include supply and filling of consumables, lubricants till final handing over to the end customer.
11. Operation & Maintenance with all resources (man & machine) for each equipment and system under the scope of this package shall be in bidder's scope. The O&M shall be done under the overall supervision & responsibility of bidder's resident manager and qualified engineers as mentioned elsewhere.

Each O&M man shift shall be defined as deployment of following labour manpower for 8 working hours:

- a. Material handling operator: 1 no.
- b. Skilled labour: 2 nos.
- c. Un-Skilled labour: 3 nos.
- d. The charges for tools & tackles, all types of consumables required during Operation & maintenance shall be deemed included in the price quoted for O&M shifts.


Deployment for O&M man shifts at any particular area will be at the sole discretion of BHEL's resident manager. Provision for part or pro-rata payment for some portion of O&M man shift is allowed at mutual agreement with the BHEL's resident manager. Price quoted for O&M man shift shall be applicable uniformly for day as well as night shifts; no separate price will be given for night shifts. All payment will be made on certification of BHEL's resident manager. In case bidder fails to provide O&M services at site till contract completion, suitable pro-rata deductions shall be made from RAB payables, for the duration of such absence, at the prevailing rate of BHEL manpower cost as penalty at the sole discretion of BHEL's resident manager whose decision shall be final and binding.

This O&M provision is over and above the requirement of normal scope of work under installation services like erection ,testing, Pre-Commissioning & commissioning activities, integrated load trial, system stabilization, Performance Guarantee Tests, Reliability Test Run and attending warranty issues.

In case the number of O & M man shifts gets extended beyond the quantity indicated in the price format, it will be paid extra on the basis of unit rate agreed in the contract.

12. Bidder shall submit complete drive schedule including motor ratings for all the equipment in this package without which the bidder's offer shall not be considered for evaluation. Tentative list is given below:

Sl. No	Description	Motor rating in kW/per machine
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Sl. No	Description	Motor rating in kW/per machine
1	Complete Wagon Tippler drives (for tripling, clamping, track stopper, coolers, etc.)	
2	Complete Side Arm Charger drives (arm luffing, coupler release, travel, coolers, etc.)	
3	Apron Feeder drive	
4	Dribble Feeder drive	

F. OTHER IMPORTANT POINTS:


Points mentioned below also form part of technical specification and bidder to also consider these things in their scope apart from referred bid documents and broad scope mentioned above.

- During detail engg., successful bidder shall submit FEA (Finite Element Analysis) of wagon tippler and side arm charger equipment for review of BHEL/NTPC without any commercial or proprietary issues. Review can take place at bidder's design office if so desired by bidder.**
- All the machines shall have BHEL's logo along with the OEM's logo and it should be clearly visible from at least 200 meter distance from the equipment.
- Bidder to quote for machines considering layout drawings enclosed in **ANNEXURE-3** i.e. Plot Plan, drg. no. 9585-001-999-POC-F-001, Flow Diagram, drg. no. 9585-001-155-PVM-L-002 and mechanical GA drawing of WT complex enclosed at Annexure-4.
- The design, manufacturing, inspection and testing of the equipment shall comply with all the currently applicable statutes, regulations and safety codes in the locality where the equipment is to be installed and shall also conform to the latest edition of Indian and other international standards and codes. Nothing in this specification shall be construed to relieve the contractor of the required statutory responsibility. In case of any conflict & ambiguity in the standard to be followed the decision of BHEL shall be final and binding.
- Bidder's are encouraged to raise all ambiguities, conflict in the standard & specification and/or interpretation of clauses, if any, in this enquiry spec. and its enclosures during pre-bid stage itself. Failing which it shall be understood that bidder has no issue and at later date successful bidder shall have no right to take any technical and commercial advantage out of any ambiguity, conflict in the standard & specification and/or interpretation of clauses. In this regard the decision of BHEL shall be final and binding and any change due to this shall have no price implication on BHEL and shall have to be absorbed by successful bidder.**
- Successful bidder shall take prior approval from BHEL while placing the E&C order for this package to their sub-contractor. BHEL reserves the right to disapprove/reject any such E&C contractor which BHEL deems not fit for executing E&C for this contract**
- Bidder shall visit the site to familiarize with the site constraints before submitting the complete offer to BHEL in all respects. No issues arising out of site condition or layout constraints shall be entertained later on during detail engineering and any


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modification required due to site condition or layout constraints shall be done by successful bidder without any cost implication to BHEL.


8. Bidders to note that even though this tender is for **wagon tippler, side arm charger , dribble conveyor & apron feeder** only, bidders shall read and comply to all relevant NIT specifications, Technical Specifications, Clarifications/Addendums/Amendments pertaining to subject package including associated equipments and items such as belt conveyor, drive chain equipments, gearboxes etc. for better clarity of scope of work.
9. Bidder shall submit the credentials for PQR clearance as per **ANNEXURE-13** Sub-vendor questionnaire & contractor's proposal cum evaluation report for BHEL & NTPC approval.
10. Bidder shall strictly follow and adhere to the guidelines laid down in the enclosed BHEL's health, safety and environment manual (HSE) and BHEL's PPE manual per **ANNEXURE-21**. Supply of safety gears/PPE for bidder's/ bidder's sub vendor personnel deputed at site for E&C, PG tests etc. shall be in bidder's scope.
11. Bidder shall obtain all statutory approvals from the relevant RDSO/Railway authorities, before the wagon tippler is put into operation. Any statutory payment charges, to be made to the concerned authorities shall be taken care by the bidder. It is the responsibility of the bidder to carry out any modifications as required by the RDSO/Railway authorities, at no extra cost to BHEL.
12. Bidder shall study the Railway DPR and the "20180604-Latest GLP in Co-ordinate system with superimposed revised ESP" as attached in the **ANNEXURE-22** for design of wagon tippler and side arm charger machines. Bidder shall give specific confirmation after study of layout about non-requirement of wagon shifter.
13. Preparation of GA drg of wagon tippler complex and Wagon Tippler control rooms shall be in the scope of bidder and bidder shall furnish necessary load data and civil inputs in the civil assignment drg of wagon tippler complex during detail engineering. This shall be done in coordination with BHEL's other package vendors. However, bidder's input drgs. should be matching with mechanical GA drawings related to wagon tippler complex enclosed at Annexure-4 and ensuring there is no change in civil & structural RFC drawings enclosed at Annexure-24.
14. Bidder to extend all help and documentary support for compliance and addressing any statutory issues raised at site which pertains to the area / work under bidder's scope.
15. Cost towards the participation in discussions/ meetings, providing technical assistance during technical discussions/ meeting with customer for approval of drawing / documents, engineering review & Project review at BHEL-ISG/Customer place/Site etc. TA/DA, boarding and lodging to attend these meetings shall be borne by the bidder and shall be inclusive in supply portion.
16. Material of construction (MOC) for various equipment's / items shall be as per enquiry specifications or any superior material with better properties. However for other MOC's not specified in the enquiry specifications then it shall be subject to BHEL / Customer / Customer consultant's approval and must be taken care by the bidder during detail engineering without any cost implication to BHEL.

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17. Bidder's scope shall also include design, supply and E&C of integral weigh bridges under tippler tables.
18. Complete detail engineering drawings, calculations, selection of components etc. shall be reviewed & subject to approval of BHEL / NTPC during detail engineering.
19. The design, manufacture, inspection and testing of the equipment shall comply with all the currently applicable standards, statutes, regulations and safety codes in the locality where the equipment is to be installed and shall also conform to the latest edition of Indian and other international standards and codes. Nothing in this specification shall be construed to relieve the contractor of the required statutory responsibility. In case of any conflict & ambiguity in the standard to be followed the decision of BHEL shall be final and binding.
- a. BHEL shall provide only the pedestals at locations as indicated in bidder's drgs. Any extra pedestal if not indicated in the drg. and is required at site, then the same shall have to be taken care by the bidder at site by engaging his own resources without any cost implication to BHEL.
 - b. BHEL shall provide insert plates\pockets at locations as indicated in bidder's drgs. Any extra insert plate if not indicated in the drg. and is required at site, then the same shall have to be taken care by the bidder at site by engaging his own resources without any cost implication to BHEL.
20. Deleted
21. Supply of grouting cement and grouting of all mechanical equipment / items and its drive base shall be in the bidder's scope. BHEL / BHEL's civil contractors shall provide only the foundation pockets for pedestals (wherever necessary) as per GA drgs of the bidder.
22. Supply of stools, foundation bolts and other embedment in concrete shall be in scope of bidder. Erection of the same will be done by BHEL's civil contractor. However, correctness of erection shall be checked by bidder.
23. Drilling of required holes in the structure of WT complex etc. for erection of drives, equipment shall be in bidder's scope.
24. Provision of any temporary supports/platforms required for E& C of mech. equipment / items shall be in the scope of bidder.
25. Integration with entire CHP shall be in scope of bidder. Necessary provisions shall be considered in the equipment/ items/ systems which are in bidder's scope for integrating with equipment/ systems/ items which are part of BHEL's other contractors' scope.
26. Bidder's scope shall also include system integration & control requirements and control philosophy w.r.t. other auxiliary systems like dust suppression, dust extraction, ventilation and water systems, done by BHEL's other contractors.
27. Deleted
28. Also minor civil works, grouting of side arm charger rack as mentioned elsewhere in this specification shall be in bidder's scope only.

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29. Touch up Painting at site after erection shall be in the scope of bidder and price of same shall be deemed to be included with the installation services.
30. Bidder shall submit complete drive schedule including motor ratings for all the equipment without which the bidder's offer shall not be considered for evaluation. (Note: 10% margin on actual power requirement at drive motor output shaft at guaranteed (rated) capacity shall be considered. The actual power at drive motor output shaft shall be calculated after considering all the losses of down the line equipment's of the drive train.)
31. Apron feeder and dribble feeder shall be provided with reliable tensioning arrangement to take care of elongation in the feeder.
32. Supply and erection of skirt arrangement between wagon tippler hopper bottom and apron feeder shall be in the scope of bidder.
33. Supply and erection of discharge chute and hood of apron feeder up to apron feeder floor shall be in the scope of bidder. Conveyor connecting chute below apron feeder floor shall be in BHEL other vendor's scope.
34. The feed of coal over the downstream conveyor from apron feeder should not cause overloading of the downstream conveyor over the entire range of speed of operation of the apron feeder. To achieve this, belt weigher signal may be suitably used to trip the apron feeder in the event of any overloading of the conveyor belt. Zero speed switches shall be provided on apron feeder.
35. Drawings of all the equipment and GA of Wagon tippler complex and Wagon Tippler Control room shall be furnished in editable 2D AutoCAD and 3D PDMS format.
36. Supply of rails and rail fixing accessories for tippler table and for side arm charger shall be in bidder scope. Rail fixing is also in the scope of bidder.
37. Arranging the empty wagon from railways for testing & commissioning of wagon tippler shall be in the scope of bidder.
38. All working parts requiring lubrication shall be of sealed construction so that dust, dirt and other foreign matter do not come in contact with wearing surface.
39. All bearings shall be properly lubricated. Grease nipples and reservoirs shall be furnished wherever necessary.
40. Supply and erection of counter weight, ballast for wagon tippler and any other civil works like rail fixing, grouting, chipping, etc. shall be in bidder's scope only.
41. Side arm charger shall be electrically interlocked with tippler for proper sequential operation with respect to operational and safety requirements.
42. All the equipment shall be of robust construction, suitable for operation in dusty, humid and outdoor operation.

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43. Bidder shall strictly adhere to BHEL/Customer/Customer consultant's approved vendor list. In case bidder proposes a new vendor for an item, acceptance shall be subject to approval by Customer/Customer consultant/BHEL. In case of items not covered in the list, bidder shall obtain prior approval from Customer/Customer consultant/BHEL-ISG before placing order.
44. It shall be the complete responsibility of the successful bidder(s) to obtain "Sub Vendor Approval" for all equipment & components being supplied for the subject package. Any delay in sub vendor's approval should not affect the project schedule. If any of the sub vendors does not have the approval of Customer/ BHEL including bidder's own make, the same may be replaced with another customer approved sub vendor only, without any price implications to BHEL.
45. Quality assurance and inspection of equipment shall be as per NIT specification. However, modalities of inspection (Stage, Final, In-process) shall be finalized during detail engineering after submission of quality assurance plan. It shall be reviewed by the customer/ customer's consultant and bidder shall follow the procedures of inspection as per the approved QAP/FQP. Bidder has to submit following documents along with inspection call and if any other documents required as per approved QAP/FQP:-
- Raw material inspection certificate.
 - Internal Test reports (Type test certificate shall be produced for exactly the same rating/specifications)
 - Statutory certificates as required.
 - All Inspection & Testing shall be carried out based on the following documents:-
 - a. Relevant Standards
 - b. Specifications
 - c. Approved Drawings
 - d. Approved Data sheets
 - e. Approved BOM
 - f. Calibration Certificate of all the measuring instruments
- NOTE: Bidder should also coordinate in getting the MDCC's (Material Dispatch clearance certificate) and all types of IC's (Inspection Certificates) from the Customer/Customer's Consultant along with BHEL.**
46. Bidder's scope shall also include supply and filling of consumables, lubricants till final handing over to the end customer.
47. Supply of grouting cement and grouting of all mechanical equipment / items and its drive base shall be in the bidder's scope. BHEL / BHEL's civil contractors shall provide only the foundation pockets for pedestals (wherever necessary) as per GA drgs of the bidder. Any small modification (braking/chipping) required in the foundation pocket (various up to +/-10% of size) during execution is to be taken care by bidder without additional cost to BHEL-ISG.
48. Necessary provisions shall be considered in the equipment/ items/ systems which are in bidder's scope, as integration with entire CHP/ LHP shall be in bidder's scope.

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49. Bidder's scope shall also include system integration & control requirements and control philosophy w.r.t. other main & auxiliary systems (like dust suppression, dust extraction, ventilation and water systems) to be done by BHEL's other contractors.
50. Supply of stools, foundation bolts and other embedment in concrete shall be in scope of bidder. Erection of the same will be done by BHEL's civil contractor. However, correctness of erection shall be checked by bidder.
51. Supply of base frame and fixing/foundation bolts (as applicable) for all equipment /items shall be in bidder's scope.
52. Necessary sensors, interlocks, etc. shall be provided by the bidder to avoid collision of both the machines in the entire travel zone.
53. Rust preventive paint after inspection at shop floor before dispatch shall be in bidder's scope.
54. Input and output couplings with coupling guards shall be in bidder's scope.
55. Storage of items at site shall be done over concrete sleepers.
56. Supply of special tools and tackles as applicable for the equipment / system shall be in the scope of bidder.
57. Bidder shall make their own arrangements well in advance for erection of equipment like crane, hydra, tools, tackles, welding machines, cutting sets, lifting tools, winches, etc. that are required for E&C purposes.
58. Minor chipping i.e. up to 50mm thk, micro leveling, and providing shim plates for erection of equipment / items shall be in the scope of bidder.
59. Cleaning of any debris produced by the bidder during E&C shall be done immediately at each front.
60. Provision of any temporary supports/platforms required for E&C of mech. equipment / items shall be in the scope of bidder.
61. Drive alignment for all equipment/systems shall be in the bidder's scope.
62. All working parts requiring lubrication shall be of sealed construction so that dust, dirt and other foreign matter do not come in contact with wearing surface.
63. All bearings shall be properly lubricated. Grease nipples and reservoirs shall be furnished wherever necessary.
64. All the equipment shall be of robust construction, suitable for operation in dusty, humid and outdoor operation. Dust seal shall be provided for all equipment.
65. Integration with entire CHP shall be in scope of bidder. Necessary provisions shall be considered in the equipment/ items/ systems which are in bidder's scope for integrating with equipment/ systems/ items which are part of BHEL's other contractors' scope. Bidder's scope shall also include system integration & control requirements and control philosophy w.r.t. other auxiliary systems like dust suppression, dust extraction, ventilation and water systems, done by BHEL's other contractors.
66. Bidder shall co-ordinate with BHEL's other vendor during E&C of downstream conveyors.
67. Bidder shall furnish the L-2 project schedule indicating various milestones and constraints along with the bid. Successful bidder shall furnish the L-3 project schedule in-line with L-2 schedule after award of the contract.

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68. Bidder shall submit the weekly engineering progress reports in BHEL's format and depute full project team for attending all project review meetings called by BHEL/ Customer/Customer's Consultant without fail.
69. Bidder to note that fronts during erection will be given progressively in a staggered manner. So, bidder has to consider and envisage mobilization of all resources required, including manpower, in a shortest possible time during execution time. For this bidder has to consider advance resource planning so that erection by the successful bidder is not delayed.
70. Bidder to ensure sufficient manpower throughout the contract for carrying out engineering and erection & commissioning activities in parallel at site.
71. Bidder to ensure the availability of qualified safety officer thought the contract period and daily/weekly/monthly report shall be submitted to BHEL's safety officer/Resident Manager.
72. Bidder to extend all help and documentary support for compliance and addressing any statutory issues raised at site which pertains to the area / work under bidder's scope.
73. Bidder to note and follow the scope matrix between mech. vendor and civil & structural vendor as attached in **Annexure-11**.
74. Painting scheme shall be submitted by bidder in line with specification as enclosed in **ANNEXURE-19** and same shall be subject to NTPC approval.
75. Bidder to note that time is the essence of this contract, thus they shall furnish the submission schedule for drgs. along with the offer.
76. Bidder shall carefully read all the NIT document and specifically following Chapters from NTPC document and its corresponding clarifications and amendments:
1. TECHNICAL SPECIFICATION SECTION-VI, PART-B BID DOC. NO. CS-9585-001-2 , SUB-SECTION-A-23,COAL HANDLING PLANT (CHP) all 121 pages
 2. TECHNICAL SPECIFICATION SECTION-VI, PART-A, BID DOC.NO. CS-9585-001-2, SUB-SECTION-IIA-15 COAL HANDLING PLANT all 5 pages
 3. TECHNICAL SPECIFICATIONS SECTION – VI, PART-A BID Doc. No.- CS-9585-001-2 SUB-SECTION-IV, FUNCTIONAL GUARANTEES ALL 98 PAGES
 4. TECHNICAL SPECIFICATION SECTION-VI, PART-B, BID DOC. NO.: CS-9585-001-2, SUB SECTION-A-02, EQUIPMENT SIZING CRITERIA
 5. TECHNICAL SPECIFICATIONS SECTION VI, PART-C BID DOC. NO.:CS-9585-001-2 , GENERAL TECHNICAL REQUIREMENTS ALL 111PAGES
 6. TECHNICAL SPECIFICATIONS SECTION VI, PART-B BID DOC. NO.:CS-9585-001-2 , ELECTRICAL 610 PAGES
 7. TECHNICAL SPECIFICATIONS SECTION VI, PART-B BID DOC. NO.:CS-9585-001-2 , CONTROL & INSTRUMENTATION 249PAGES
- 77. Important Points w.r.t Document/Drawing Submission to Customer/Consultant (through BHEL):-**

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- a. During detail engineering, bidder(s) to strictly adhere to BHEL/Customer/Customer's Consultant drg. formats, document numbering, quality plan & FQP formats.
- b. Complete detail engineering drawings, calculations, selection of components etc. shall be reviewed & subject to approval of BHEL/Customer/Customer's Consultant during detail engineering.
- c. **Bidder shall furnish necessary inputs & drawings (GA drawing of the equipment, civil assignment drawings for WT complex, necessary civil inputs etc.) in editable AutoCAD format, ensuring that there is no change in civil & structural RFC documents enclosed at Annexure-24.**
- d. Preparation of GA drawing and civil assignment drgs for **Wagon tippler complex**, necessary civil input drgs shall be in the scope of bidder and the drgs shall be submitted in soft editable format.
- e. Bidder shall ensure the correctness of civil assignment drawings, which shall be an input for BHEL's civil and structural design agency, **ensuring that there is no change in civil & structural RFC documents enclosed at Annexure-24.**
- f. Successful bidder shall simultaneously prepare and submit in editable 2D AutoCAD as well as 3D PDMS design review model of entire **Wagon tippler complex** along with the details of foundations pockets, individual equipments in mounted condition with drives (like apron feeder, WT SAC Dribble conveyors, skirt sealing chute work etc. and associated with the scope of work of this package. The 3D models shall include visual interference check, walk-through animation, video simulation for major equipment placement and removal, visual effect, photo realism etc.). After the completion of engineering of the corresponding complete 3D model shall be handed over to the NTPC & BHEL for its reference. Successful bidder shall ensure that the 3D model preparation is started within 1 month of LOA and are available to make a presentation of the same every 1 month to BHEL & NTPC for review the progress of engineering or as & when required by BHEL & NTPC, if bidder fails to provide 3D Model drgs on time then BHEL reserved the right to place the order for 3D modeling at successful bidder's risk and cost. Also, the 3D models shall be integrated with BHEL's intelligent 3D software and bidder shall depute their engineers in assisting such integration in BHEL PEM Noida premises as and when required.

The price of 2D AutoCAD drgs and 3D PDMS drgs shall be deemed to have been included in the total bid price.

- g. **Bidder shall review and give their compliance & concurrence for civil & structural drgs enclosed at Annexure-24. Later if any mismatch is observed during erection, then same shall have to be taken care by the bidder at site by engaging his own resources without any cost implication to BHEL.**
- h. List of Drawings to be submitted for each item/system shall be intimated to the successful bidder during detailed engineering and drawings shall be submitted in line with the list. Engineering drawings/documents must essentially contain the drawings as listed in ANNEXURE-15 (given as part of enclosures) including the following but not limited to these and any drawing/document required by BHEL/Customer shall be furnished by bidder during detail engineering:


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1. General Arrangement drgs, etc.
 2. Civil assignment drgs with Load data
 3. Various Schedules
 4. Design & Capacity Calculations
 5. Data Sheets
 6. Operation Philosophy
 7. Review and vetting of Fabrication drgs & other structures (if applicable)
 8. O&M Manuals, E&C Manuals (to be available prior to start of E&C work)
 9. Commissioning, PG Test Procedures & Test Program
 10. QAPs
 11. FQPs (Procedure Qualification Record & Welding Procedure Specification)
 12. Inspection Categorization Plan (Mechanical and Electrical)
 13. Painting Schedule
- i. Bidder to ensure submission of hard copies as per end customer's requirement for all engineering drg/doc and for all subsequent revisions along with a soft copy sent through email addressed to Project manager and concerned project team. Bidder to also ensure submission of additional 4 sets of hard copies over & above end customer's requirement to BHEL's site office. However all the engineering related information shall be furnished in soft form to BHEL.
- j. During detail engineering, successful bidder(s) shall ensure flow of drgs/docs as mentioned below:
- i. All drawings/documents and its subsequent revisions shall be submitted to BHEL for initial review and comments.
 - ii. All BHEL comments shall be sent back to vendor for incorporation/correction within 7 days of receipt of drgs from vendor.
 - iii. Vendor to incorporate these comments without changing the BHEL revision number in the drgs/docs and re-submit within maximum 5 days along with the compliance sheet.
 - iv. Upon receipt of corrected drgs/docs from vendor, if the same are found OK, then it shall be submitted to Customer/Customer's Consultant for their review/approval. But in case the drgs/docs are not found OK, then the same shall be again sent back to vendor for incorporation of comments/corrections and step 1 to 3 shall repeat till drgs/docs are found in order. Only when the drgs/docs are found in order by BHEL, onward submission to Customer/Customer's Consultant shall be done by BHEL.
 - v. Bidder will be intimated about the drgs/ docs submission date to Customer/Customer's Consultant.
 - vi. **Thereafter it shall be respective bidder's responsibility for obtaining time bound approval on all the engineering drawings and documents from Customer/Customer's Consultant and resolving the technical queries raised by BHEL/Customer. BHEL's role shall be limited to that of an enabler for arranging such technical discussion, meetings, video conferencing with Customer/Customer's Consultant.**

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- vii. In the event Customer/Customer's Consultant does not approve the drgs, then the commented drgs/docs as received from Customer/Customer's Consultant shall be sent to the vendor for revision.
- viii. Revised drgs/docs with compliance in next revision shall be submitted maximum within 5 days along with the compliance sheet as per the attached format.
- ix. The process as mentioned in point no. 1 to 8 above shall follow till approval is received Customer/Customer's Consultant.

78. Construction Power and Construction Water Facilities shall be provided at one location. Bidder to make his own arrangements to take it to his working location.
79. During trial operation of plant, all equipment should run for a minimum period as per NIT specifications during which the equipment including stand-by shall run at its rated capacity. All PG test parameters of end customer shall be complied by bidder without any price implication to BHEL.
80. Bidder shall ensure that any portion of the machine, its rails and its mountings shall not foul with the civil structure, walls, ventilation ducts and in case it is found to be fouling then bidder shall make necessary changes in their equipment without altering any civil design to avoid any such hindrances and it shall not have any price implication on BHEL.
81. Deleted.
82. During trial operation of plant, all equipment should run for a minimum period as indicated in NIT specifications, during which the equipment including all the stand-by shall run at their rated/guaranteed capacity. All PG test parameters of end customer shall be complied by bidder without any price implication to BHEL.
83. Bidder to note that "no deviation" from the enclosed NIT specifications & tender documents shall be acceptable unless and until written approval from BHEL/ Customer/Customer's Consultant has been accorded.
84. Bidder shall submit a signed copy of BHEL's tender documents with all enclosures along with the technical offer without any deviations. The enclosures may be digitally signed and enclosed.
85. Painting scheme shall be submitted by bidder in line with NIT specifications and the same shall be subject to approval of BHEL/ Customer/Customer's Consultant. Final approved painting scheme shall be followed by bidder without any price implication to BHEL.
86. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification. Any specific deviation (any such which is contradicting with the specification), exclusion shall be mentioned in the deviation/cost withdrawal format only. Deviation mentioned elsewhere shall stand null and void and no deviation from the enclosed tender documents shall be acceptable unless and until written approval from BHEL/ Customer/Customer's Consultant has been accorded.

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87. Bidder to note that list above is not exhaustive and any work / items required for completing the system and ensuring its satisfactory running shall also be in the scope of this package bidder.
88. Bidder to note that time is the essence of this contract, thus bidder to adhere to the submission schedule as per enclosed **ANNEXURE-15** and overall project execution time schedule as per **ANNEXURE-18**.
89. Bidder to refer to **ANNEXURE-20** for pro-rata progressive payment for drg submission and approval.
90. Bidder shall not consider any HT motor for drives of wagon tippler, side arm charger or apron feeder. Multiple LT motors have to be considered by bidder for meeting drive sizing requirement.
91. Bidder to strictly adhere to the ‘not to exceed’ electrical load list enclosed at **Annexure-25**.
92. Bidder to furnish the signed and sealed ‘site familiarization format’ enclosed at **Annexure-26**.
93. Bidder shall submit the signed and stamped copy of all the pages which constitutes this technical enquiry specification signed by authorized signatory and clearly mentioning each clause under following two categories to avoid any ambiguity in scope understanding & the scope division along with technical offer.
- “Accepted without deviation and considered in scope of work”
 - “Not considered in scope of work”


Bidder to note that lists above are not exhaustive and any work / items required for completing the system and ensuring its satisfactory running shall also be in the scope of this package bidder.

G. ELECTRICAL SCOPE:-

Scope of Electrical and C&I for this package shall be as per Package-C, **ANNEXURE-2** and sub vendor list for ELECTRICAL & C&I items as per **ANNEXURE-23**

H. GUIDELINES FOR BIDDERS W.R.T. STORAGE, ERECTION & COMMISSIONING, SERVICES ETC:-

- Bidder shall submit the credentials (CV) of the staff for evaluation of competency level at least 10 days before deployment to site. BHEL’s resident manager reserves the right of accept or reject such executive/staff, if found not competent for the job (before or after deployment)and in such scenario bidder shall submit credential of another competent executive/staff as per the satisfaction of BHEL’s resident manager without any delay or hampering the execution job.
- Bidder shall depute continuously and maintain following minimum nos. of qualified engineers and supervisors at site for E&C, coordination and commercial activity for the bidder’s supplied equipments.
 - Resident Manager – 1 member
 - Mechanical Engineer (min 2 years site experience) or mechanical supervisor (min 5 years site experience) – 3 members
 - Civil & structural Engineer (min 5 years site experience) - 1 member
 - The role of the engineer shall be to cross-check and supervise the correctness, compatibility and suitability of civil & structural works w.r.t E&C of bidder’s mechanical systems/ equipment. A joint protocol shall be prepared and signed

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by the bidder and BHEL’s civil personnel for record after casting. Later on, no claims from bidders shall be entertained regarding misalignment of pedestal castings, footings, cutouts, pockets etc. if not prepared as per bidder’s drawings/requirements.

- d. Electrical Engineer (min 2 years site experience) or Electrical Supervisor (min 5 years site experience) - 1 member
- e. Quality cum safety engineer (Minimum 2 years site experience) – 1 member
- f. Storekeeper - 1 member
- g. For commercial activity - 1 member
- h. Security – 2 person/shift as mentioned in the scope

In case bidder fails to maintain the above minimum manpower at site till contract completion, suitable pro-rata deductions shall be made from RAB payables, for the duration of such absences, at the prevailing rate of BHEL manpower cost as penalty at the sole discretion of BHEL whose decision shall be final and binding.

3. Bidder's staff shall necessarily comply and ensure following at site:-

- a) Correctness checking during civil construction as per mechanical drawings.
- b) Frequent condition checks of stored material and its transportation to erection front.
- c) Stage wise erection of all Mechanical, Electrical and C&I equipments & accessories.
- d) Arranging technical specialist for supervision of specialized jobs from respective OEMs.
- e) Measurement Protocols
- f) Preparation of Protocols
- g) Any Protocols as per FQP
- h) Any other activity required for successful E&C at site


4. **Bidder shall arrange technical specialist for commissioning of its special bought out items (such as hydraulic system - hydraulic motors, hydraulic circuit etc, VVVF drives and PLC etc.) from the respective OEM.** In case bidder fails to maintain or arrange supervision & commissioning specialist within the stipulated time, BHEL shall arrange for the same at bidder’s risk & cost and/or suitable pro-rata deductions shall be made from RAB payables, at the prevailing rate of BHEL manpower cost, at the sole discretion of BHEL’s Resident Manager, whose decision shall be final and binding.

Commissioning Services for Specialized Job:-

- i. PLC
- ii. VVVF Drives
- iii. Hydraulic motor, Power Pack, Hydraulic system and its piping etc.

5. Bidder shall necessarily comply and ensure following w.r.t **Storage & Preservation** for main supply material & mandatory spares at site:-

- a) Prepare and submit the “Dispatch & Receipt Reconciliation Report”.
- b) Make periodic condition checks for the safety of boxes/items during storage of main material, mandatory spares etc.

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- c) Maintain requisite inventory records.
- d) Bidder has to keep the material properly as per storage WI. In case bidder fails to adhere the WI and any consequential damage/missing items due to non-adherence of storage WI, No insurance claim can be entertained by BHEL and items shall be replaced by vendor without cost implication to BHEL.
- e) Monthly inspection report to be submitted by successful bidder to BHEL site-in charge / Resident Manager for storage and preservation of materials kept under closed / open stores as part of RAB. In case bidder fails to report the status in anyone of the month, further any damages reported in the subsequent month will not be entertained by BHEL and entire item has to be supplied by bidder at their own cost. No insurance claim shall be entertained.
- f) Bidder has to report the damage/theft/fire, etc to Resident Manager, BHEL-ISG immediately along with detailed incident report, Joint inspection report by bidder/BHEL, photograph, copy of invoice with received seal, etc to report to insurance agency within a week time of incident followed by FIR. If, bidder fails to produce the document in the stipulated time as mentioned above, BHEL will not entertain for any insurance claim and entire items are to be supplied by bidder without additional cost to BHEL.

6. Bidder shall necessarily comply and ensure following w.r.t **Testing, Trial Run & Commissioning activities:-**


- a) Initiate start-up and commission the complete unit (all mechanical, electrical & C&I equipments and machine as a whole) in an integrated manner under his sole responsibility.
- b) Perform the required adaptation, adjustment and hot run the equipment to demonstrate its guaranteed capacity.
- c) Rectify the defects observed during commissioning under his sole responsibility.
- d) Results of start-up tests and commissioning etc. will be recorded jointly by the bidder and Customer/ Consultant.

9. Bidder shall necessarily comply and ensure following w.r.t **Post-Commissioning & PG testing of the machine and preparation and submission of signed test protocols:-**

- a) Submit all final documents in compliance with the provisions of this specification.
- b) Submit test procedures, and test evaluation methods prior to taking up Performance Tests etc.
- c) Offer the machine for conducting Performance Guarantee Tests etc.
- d) Carry out the PG tests etc. under their instruction and take full responsibility of the operation.
- e) Supply all consumables, change parts, special tools and tackles and commissioning spares in coordination with bidder's headquarter.
- f) Undertake O&M Services (as described and required for the subject package).

Note:

- 1) Bidder should have met, to the satisfaction of Customer/ Consultant, all the observation, if any, contained in the Preliminary Acceptance Certificate.

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2) The performance tests for all plant equipment will be carried out to satisfy all operating parameters as per the relevant clauses of the contract technical specification for the equipment under consideration.

10. It shall be the sole responsibility of bidder's staff to do measurement and other protocols, prepare, maintain (record keeping) and follow all stage wise erection & commissioning protocols in line with FQP and customer requirement. Also, getting the protocols signed by all concerned agencies - BHEL's Engineer and Customer/Consultant shall be the responsibility of bidder's staff. Special care shall be taken for all payment linked protocols so that it is ensured that such protocols are signed well within time and no payment to BHEL is held up by end customer on account of these protocols.

11. Bidder shall ensure the correctness of the civil assignment drawings which shall be an input for BHEL's civil & structural design agency:-

- BHEL/ BHEL's civil contractors shall provide only the foundation pockets for pedestals at locations indicated in the bidder's GA drgs. If any extra pedestal is not indicated in the drawing, but is required at site, then the same shall have to be taken care by the bidder at site by engaging his own resources without any cost implication to BHEL.
- BHEL/BHEL's civil contractors shall provide insert plates/pockets at locations indicated in bidder's drawings only. If any extra insert plate is not indicated in the drawing, but is required at site, then the same shall have to be taken care by the bidder at site by engaging his own resources without any cost implication to BHEL.

12. If any modification in sub-assemblies is required due to mismatch among bidder's GA drgs, detail drgs & actual supplied material, either bidder shall send it back to his works and get it corrected. Or if rework is to be done at site then all logistics support (as required) shall be arranged by the bidder and all re-work charges (labour, machines etc.) shall be borne by the bidder. If any item/part needs to be taken to OEM's factory for repair/rectification, then the cost towards transportation, rework etc. and the complete responsibility shall be in bidder's scope.


13. Bidder to ensure that there shall be no loss of erection time due to any of the following reasons:-

- a) Faulty/ Defective supply of parts/equipments
- b) Improper packing and transportation
- c) Any short supply/ delay in supply
- d) Any mismatch/ wrong supply
- e) Non-availability of replacement item
- f) Any site modification, if it is due to mismatch between bidder's GA, detail drgs. etc.

14. No material should touch ground in open yard. Storage of items shall be done over wooden/concrete sleepers.

15. Bidder shall take care of following points:

- a. In general BHEL's working hours/Holidays/weekly off at site shall be followed by bidders and it shall be informed time to time by BHEL's Resident Manager. Accordingly, bidder to align their site staff's working hours/Holidays/weekly off at site so that there is no loss of work and delay in project milestones& targets.

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- b. BHEL’s Resident Manager (at his sole discretion) may require bidder’s services on weekly off/ holidays due to project exigencies; bidder to extend necessary support required during such events.
- c. While leaving the site, bidder’s staff shall inform & take written permission from BHEL’s resident manager as well.
- d. Suitable replacement shall be ensured during any personal emergency to the bidder’s executive deputed at site at any given point of time and all such changes shall be brought to the notice of BHEL’s Resident Manager.

Note: The job descriptions covered above are not exhaustive and bidder shall consider any other activity required for the successful installation of the total machine as a whole.

I. WORK INSTRUCTIONS FOR STORAGE & HANDING OVER OF MANDATORY SPARES:-

Following work instructions for storage & handing over of mandatory spares shall be complied and ensured by the bidder:

- a. Spares shall be sent in pre-decided lots in containers/secure boxes. This shall be applicable to both shop items as well as BOIs.
- b. All boxes/containers are to be distinctly marked in red color with boldly written "S" mark on each face of the containers
- c. Unless technically not feasible, BBU number should be put on the item(s) in a durable manner (punching/painting, etc.), so that items can be easily linked with approved BBU for ease of handing over to customer.
- d. Expiry date for short shelf life items (oils, chemicals, insulation material etc.) should be put on the item as well as on the packing box.
- e. Storage, safety of boxes/items and maintaining requisite inventory records will be the responsibility of bidder’s representative at site.
- f. Bidders shall make periodic checks for safety of boxes/items, as the case may be.
- g. For handing over of mandatory spares, getting MRC from customer and physical reconciliation with customer shall be the joint responsibility of the bidder’s site representative and BHEL’s site representative.
- h. Delivery Schedule & category of Mandatory Spares shall be as per Annexure-I to Amendment Amdt.3 to BDS enclosed in **ANNEXURE-14**:
 - a) Category I Items - 50 % Items to be supplied one month before scheduled synchronization of the 1st Unit and Balance one month before scheduled Synchronization of the last Unit.
 - b) Category II Items -25% of each items to be supplied one month before scheduled synchronization of U#1 and U#2 respectively and balance 50 % to be supplied one month before scheduled Synchronization of U#3.
 - c) Category I & Category II Items shall be as enclosed in, Sec-III.
 - d) Category I – High value item, delivery schedule 1 month before COD of last unit.

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e) Category II – Other item delivery schedule, proportionate quantity (i.e. for 4 units 25%) 1 month before COD of each unit.

J. DOCUMENTS / INFORMATION TO BE FURNISHED ALONG WITH THE TECHNICAL OFFER:

- a. GA drawings of equipment along with load data
- b. GA drawing of Wagon Tippler Complex (Tentative)
- c. Data sheets of equipment
- d. Weight of the equipment
- e. Consumed power values and motor ratings of all the equipment
- f. Confirmation of scope in line with Tender.
- g. Drawing/document submission schedule
- h. L-2 schedule
- i. List of special tools and tackles.
- j. List of commissioning spares and start-up spares
- k. Un-priced price schedule for supply & erection work mentioning "Quoted" against each item in our price format.
- l. List of recommended spare parts.
- m. Electrical Load list/Feeder list with type/rating/power requirement.
- n. Type and quantity of oil, lubricants & consumables for initial fill and till successful commissioning and handing over of equipment.
- o. Technical data sheet to be filled by bidder as per **ANNEXURE-8**
- p. Catalogues of respective equipment
- q. Type and quantity of oil, lubricants & consumables for initial fill and till successful commissioning and handing over of equipment.
- r. Electrical Load list/Feeder list with type/rating/power requirement.
- s. Tentative equipment layout for wagon tippler control room

K. FACILITIES TO BE PROVIDED BY THE OWNER/ BHEL:

1. Land at free of charge as available for the construction of handling plant. No space will be provided by the Customer/ BHEL for the Contractor's labour colony. All facilities for labour housing shall be the sole responsibility of the Contractor.
2. Construction power (chargeable): BHEL will provide one Source of Construction Power from where Vendor to tap power by installing Electric Meter and Electricity charges will be deducted from their bill at per rates prevailing to Site. Further distribution including tariff/energy meter, Power Cabling and other equipments required installation, shall be carried out by the bidder as per his requirement. Location of the tap point shall be at any place in the power plant. Location shall be provided during detailed engineering.

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3. All temporary wiring must comply with safety erection regulations and shall be subjected to Engineers inspection/ approval before connection to supply. BIFPCL/BHEL shall not be responsible for any interruption in power supply. Contractor shall make his own arrangement for alternative source of power supply through deployment of adequate capacity and number of DG sets to meet the construction needs without any extra cost to BIFPCL/BHEL. The non-availability of supply or its quality shall not be cited as hindrance of work execution.
4. Construction Water (free of charge): The Contractor shall make his own arrangement for water for erection & drinking purposes. Vendor may draw construction water, if required, from one source provided in CHP area.


L. MILESTONE SCHEDULE:-

Bidder to prepare L2 schedule and submit to BHEL within 10 days of LOI for BHEL's approval. In this L2 schedule Bidder to indicate following milestone activities along with detailed micro level planning and ensure that the schedule is within the overall time period as indicated in the CTC and ensure all resources are mobilized accordingly.

1. Completion of basic engineering
2. Completion of detail engineering
3. Completion of bidder's bought out items ordering - (un-priced PO to be submitted to BHEL)
4. Completion of construction of temporary open & closed storage shed
5. Start of dispatches
6. Completion of all dispatches
7. Start of erection
8. Completion of erection
9. Readiness of System /Equipments / Machines

M. EXCLUSIONS:

1. Design, supply and E&C of Dust suppression system for wagon tippler and apron feeder is excluded from bidder's scope.
2. Design, supply and E&C of ventilation system for wagon tippler complex is excluded from bidder's scope.
3. Civil design and civil works of Wagon Tippler complex are excluded from bidder scope. However bidder shall prepare and furnish the mechanical GA drawings (both in 2D Autocad and 3D PDMS) of Wagon Tippler complex, civil assignment drgs. / load data drgs. indicating sizes, floor plans, equipment load details etc. any other input. It is the responsibility of the bidder to ensure completeness of mechanical GA of wagon tippler complex with all load details & bidder shall assist / clarify the queries raised by civil design done by BHEL / BHEL's other vendor. Also minor civil works, grouting of side arm charger rack as mentioned elsewhere in this specification shall be in bidder's scope only.
4. Grating over hopper is excluded from bidder's scope.
5. Shed over WT hopper, hoist in complex are excluded from bidder' scope.

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N. LIST OF ENCLOSURES:

Following enclosures are an integral part of this technical enquiry and must be signed, stamped and submitted by bidder along with the offer (enclosed in soft form in wrench website, link for downloading is given elsewhere in this enquiry):

1. NTPC NIT Specification BIDDING DOCUMENT NO. : CS-9585-001-2 (total 7836 pages)
2. Amendment & Clarification (66 documents)
3. Annexure-1 Project information
4. Annexure-2 Electrical , C&I scope
5. Annexure-3 Plot plan and Flow diagrams
6. Annexure-4 Mechanical GA drawing of WT complex 9585-001-155-PVM-B-060 Rev3P
7. Annexure-5 Technical Data Sheet
8. Annexure-6 Auxiliary Power Format
9. Annexure-7 Mandatory Spares List & Spare Category
10. Annexure-8 Technical Data Sheet (to be filled by bidder)
11. Annexure-9 Guarantee Declaration Functional Guarantee
12. Annexure-10 Billing Break-Up format
13. Annexure-11 Scope Matrix between Mechanical & Civil-Structural Vendors
14. Annexure-12 Sub- Vendor Lists & format
15. Annexure-13 Sub-vendor questionnaire & contractor's proposal cum evaluation report
16. Annexure-14 Category of Mandatory spares
17. Annexure-15 Drg & document Submission Schedule
18. Annexure-16 Drive List To Be Filled By Bidder
19. Annexure-17 Bought Out Ordering Schedule
20. Annexure-18 Time Schedule
21. Annexure-19 Surface Preparation And Painting (10 Pages)
22. Annexure-20 Weightage for drgs & BOI ordering for Pro-rata Payment
23. Annexure-21 BHEL's HSE Manual & PPE Manual (16 Pages + 142 Pages)
24. Annexure-22 DPR and Railway siding drgs
25. Annexure-23 Electrical C& I Vendor List
26. Annexure-24 Civil GA drgs.
27. Annexure-25 'Not to exceed' electrical load list
28. Annexure-26 DECLARATION FOR SITE FAMILIARIZATION
29. Annexure-27 STANDARD STORAGE INSTRUCTION & FIELD QUALITY PLAN
30. Annexure-28 Declaration for no change in civil & structural RFC drawings