



GUJARAT STATE ELECTRICITY CORPORATION LTD

Enquiry Specification
for
Ash Handling System - Retrofitting of ESP of
GSECL Wanakbori TPS Units 4, 5 & 6 (3X210 MW)



BHARAT HEAVY ELECTRICALS LIMITED
INDUSTRIAL SYSTEMS GROUP
BANGALORE



BHEL-ISC
BANGALORE

**Enquiry Technical Specification For
Ash Handling System – Retrofitting of ESP of
GSECL Wanakbori TPS Units 4, 5 & 6 (3X210
MW)**

Specification No.
IS-1-19-2019/ 001

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01.00.00 **PROJECT INFORMATION**

01.01.00 Gujarat State Electricity Corporation Ltd. (GSECL), is a company promoted in 1993 by the Gujarat Urja Vikas Nigam Ltd., (GUVNL- formerly GEB) as 100% owned subsidiary. The company is generating power from Coal, lignite and gas as a fuel. In addition to thermal power plants, hydro, solar and wind power plants are also installed by the company.

01.02.00 At Wanakbori TPS, there are 7 X 210 MW units. All the ESPs are supplied by BHEL India. At Wanakbori TPS, ESPs of Unit No. 4, 5, & 6 are of 210 MW capacity and were originally designed for emission of 200 mg/Nm³. Due to deterioration in the coal quality, ageing effect and change in the operating condition of the boiler, the present level of emission with certain renovations, anticipation of emerging futuristic stringent norms of GPCB (Gujarat Pollution Control Board), it is utmost necessary to retrofit these ESPs to bring down emission level to lowest possible on sustainable basis under various operating conditions/contingencies for further period of 20-25 years (not higher than 50 mg/Nm³ in any case).

01.03.00 The Wanakbori Thermal power project of GSECL located in Thasra Taluka of Kheda district in Gujarat which comprising of 7 nos. of units, with total installed capacity of 1470 MW as indicated hereunder:

Sl. No.	Stage	Unit No.	Capacity	Make	Date of Commissioning
1	Stage-I	Unit No. 1	210 MW	BHEL	23-03-1982
2	Stage-I	Unit No. 2	210 MW	BHEL	15-01-1983
3	Stage-I	Unit No. 3	210 MW	BHEL	15-03-1984
4	Stage-II	Unit No. 4	210 MW	BHEL	09-03-1986
5	Stage-II	Unit No. 5	210 MW	BHEL	23-09-1986
6	Stage-II	Unit No. 6	210 MW	BHEL	18-11-1987
7	Stage-III	Unit No. 7	210 MW	BHEL	31-12-1998

01.04.00 Altitude above mean sea level situates near Wanakbori dam on river mahisagar is 80 mtrs.

01.05.00 The details of project site, in brief, for Wanakbori is as under:

01.05.00 The site is located on the bank of Mahi River at Wanakbori in Kheda district, Gujarat.

01.05.01 The nearest railway station is Sevalia, 8 km away. The station has siding facilities. The railway track is broad gauge.

01.05.02 The site is easily approachable by National Highway NH-08 at a distance of about 70 KM. The nearest town is Balasinor at a distance of approx. 13 km.

01.05.03 Nearest Airport are Vadodara and Ahmedabad at the distance of about 85 KM and 100 KM respectively from site.

01.05.04 Nearest Sea Port are Mumbai and Kandla.

02.00.00 **EXISTING PLANT DETAILS**

02.01.00 The Ash and Dust Handling Plant is designed and installed to remove ash, grit and dust (the residues left after coal has burnt) from the boiler plant and to deposit it in lagoon area approximately two kilometers away and also silo system.

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- 02.02.00 Maximum of 64 (sixty-four) tones of bottom ash is collected in every shift. The bottom ash system is capable of disposing off this ash in 11/2 (one and a half) hour.
- 02.03.00 Maximum of 368 (three hundred and sixty-eight) tones of fly ash is collected in every shift. The fly ash system is capable of disposing off this ash in 4 (Four) hours.

02.04.00 For Wanakbori Unit No. 4, 5 & 6: Design data of Ash handling system

Sr. No.	Description	Details
(A)	Bottom ash system:	
1	Maximum bottom ash collection	64 MT per shift
2	Time rate for disposing bottom ash	42.67 MT per hour
(B)	Fly ash system:	
1	Maximum fly ash collection	368 MT per shift
2	Time rate for disposing fly ash	92 MT per hour
3	Ash water header pressure	8.5 Kg/cm ²
4	Ash water pump suction pressure	----
5	Fly ash system high vacuum(Shutoff)	550 mm of Hg
6	Bottom ash system discharge pressure	0.9 Kg/cm ²
7	Control air discharge pressure	5.0 Kg/cm ² to 6.0 Kg/cm ²
8	Clinker grinder seal water pressure	1.6 Kg/cm ²
9	Hydro ejector water pressure	6.8 Kg/cm ²
10	Hydro vector water pressure:	7.9 Kg/cm ²

02.05.00 Existing Ash Handling Plan Details

02.05.01 In the existing Ash Handling Plant, the ash evacuation from ESP hoppers is being done in two methods:

02.05.02 **Wet mode** – The dry fly ash is being conveyed from the entire ESP hoppers to Wetting head and Collector Tower through vacuum created by hydro-vector system and there after Ash slurry is being conveyed from Collector tank to Ash slurry sump and there after Ash slurry is being conveyed from Ash slurry sump to Ash Pond by means of Ash slurry pumps.

02.05.03 **Dry mode** – The dry fly ash is being conveyed from 1st & 2nd row of ESP hoppers through pneumatic dry ash conveying system to the Intermediate silo of Cement manufacturing agency. The dry ash from 3rd row to last row of ESP hoppers is being manually collected in jumbo ash bag by gravity.

02.06.00 In case, the ash evacuation is not done in dry mode than ash evacuation is to be done in Wet mode.

03.00.00 **SCOPE OF SUPPLY & SERVICES**

03.01.00 The ESPs are being renovated to reduce the stack emission level of Unit Nos. 4, 5 & 6 of Wanakbori TPS to below 50 mg/Nm³ & to achieve this, an additional field is introduced in front of existing 1st field for the ESPs. The ash collection data for the renovated ESP is furnished in Annexure-I. The broad scope of work in ash handling system for this renovation is broadly listed below –

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03.01.01 For the new additional ESP hoppers

- 03.01.02 Supply, erection and commissioning of M.S. Adaptor, hopper isolation valve and pneumatically operated ash intake valve with solenoid, limit switch, instrument air pipes and other accessories for new ESP hoppers. Expansion joints, wherever required, shall also be provided.
- 03.01.03 Supply, erection and commissioning of Cast iron pipes, valves, bends, fittings & specialties, pneumatic actuators, structural steel, platforms from new ESP hoppers to the existing ash conveying pipelines.
- 03.01.04 The fly ash conveying Cast iron pipes from existing ESP hoppers up to Collector tank are routed through inlet area of ESP. Hence, bidder shall have to supply & carry out the work of relocation of existing fly ash lines and its fittings with supporting steel structure for execution of erection of new ESP hoppers.
- 03.01.05 At present, the fly ash from existing 1st & 2nd rows of ESP hoppers are being conveyed through pneumatic fly ash conveying system to Intermediate silo of cement manufacturing agency.
- 03.01.06 As one [1] new field is being added on the front side of ESP, bidder to consider dismantling, shifting and erection of existing ash vessels, Dome valves, pipes, bends, and electrical system etc. of pneumatic fly ash conveying system from existing 2nd row of ESP to the new proposed 1st field of ESP.
- 03.01.07 Further, relocation of any other pipes is also in scope of bidder.
- 03.01.08 All nuts, bolts, gaskets, jointing materials and all other materials required for shifting of Dome valve, vessels, etc. of 2nd row to new hopper including necessary structural steel materials required for execution of above work is in the scope of bidder.
- 03.01.09 Bidder shall ensure the functionality [wet & dry mode] in the new first field of the ESP as listed in clause no. 02.05.00 of this specification & consider equipment accordingly.
- 03.01.10 In case existing fly ash evacuation is found to be inadequate, bidder shall have to design, supply, erect and commission Hydro-vector units with collector tanks and associated systems, if required to enhance the ash handling plant capacity for the additional fields.
- 03.01.11 Complete water piping, if required, up to the terminal point of wetting unit/collector tank along with the valves, fittings, etc. is in scope of bidder.
- 03.01.12 All interconnecting compressed air/exhaust pipelines complete with valves and fittings and supporting steel structure & platforms are in scope of bidder.

03.02.00 Broad scope of work for existing ESP hoppers' ash removal system

- 03.02.01 Overhauling of existing equipment of fly ash evacuation system with all required spares, nuts, bolts, gaskets, jointing materials and necessary structural steel materials etc. as per actual site condition shall be in scope of bidder.
- 03.02.02 At present, hopper isolation valves are not provided above ash intake valves of existing ESP hoppers. Hence, bidder to consider installation of hopper isolation valves keeping the center line of height of existing fly ash disposal line unaltered and for the same if any material is required, the same is in bidder's scope.
- 03.02.03 Overhauling of ash intake valves and replacement of complete assembly of ash intake valve, valve body, valve seat, slide plate, air inlet check valve, pneumatic cylinder etc. if required, shall be in scope of bidder.



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- 03.02.04 Overhauling of segregating valves, Vacuum breaker valves and replacement of complete assembly of valve, valve body, valve seat, slide plate, pneumatic cylinder etc. if required, shall be in scope of bidder.
- 03.02.05 Dismantling, checking of 8" cast iron fly ash lines & its fittings from ESP hoppers to Collector tank and replacement of 8" cast iron fly ash pipes, its coupling joints, elbows, Y-piece, rubber gaskets etc. if required, shall be in scope of bidder.
- 03.02.06 Overhauling of Collector tank, wetting head, Air washer system and its associated system and replacement of wear plate of collector tank, wetting head assembly, wetting head nozzles, Air washer nozzles, slurry flushing nozzles, various water valves etc. if required, shall be in scope of bidder.
- 03.02.07 Overhauling of Hydro vector assembly and replacement of Hydro vector assembly, nozzles, tail pipes, water valves etc. if required, shall be in scope of bidder.
- 03.02.08 Checking, strengthening/refurbishment, painting of existing structure of Collector tower & Hydro vector system shall be in scope of bidder. Inspection of the same shall be as per the approved FQP.
- 03.02.09 High & Low level probes/Ash Level Indicators will be supplied by BHEL as free issue. Installation/Erection of the same is in bidder's scope.
- 03.02.10 The details of last four years' material consumption of Ash Handling Plants of Wanakbori Unit 4, 5 & 6 is attached along with this tender documents as Annexure-II. Quantity to be considered by the bidder is specified in the list. The bidder shall be paid based upon the actual requirement of the spares at site. Hence, bidder needs to quote for individual spare items at present. The unit rate of the spares quoted shall be used for additional payment/short closure for overhauling spares supply amount. In case any additional spares which are not listed in the list, rate shall be derived from the similar spare items available in the list. Bidder shall submit list of overhauling spares requirement within a week of site mobilization/unit shutdown after assessing site condition. Clearance for the supply of overhauling spares shall be provided by BHEL after detailed study of the spare requirement list submitted by the bidder.
- 03.02.11 Erection & Commissioning and associated services for additional overhauling spares is also included in scope of successful bidder.
- 03.03.00 General Requirements**
- 03.03.01 Bidder's scope of supply & services includes system design, engineering, sizing & selection of equipment, manufacturing, procurement, supply of equipment including all spares, technological structures, inspection & testing, shop floor tests, painting, packaging & transportation to site including customs/port clearance, security, handling at site, erection & commissioning, final painting at site, system integration, trial run, performance guarantee tests & handing over of the ash handling system as EPC turnkey package.
- 03.03.02 Any item or works though specifically not mentioned in this specification but needed to complete equipment & systems within the scope of work and battery limit to meet the objective of the specification shall also be furnished, unless specifically mentioned under exclusion of this specification. It is the total responsibility of the bidder to make the system complete for handover.
- 03.03.03 It is not the intent to specify herein all aspects of services and equipment to be provided by the Bidder who, in any case, shall be responsible for fulfillment of the basic intent of this specification. Irrespective of whether specifically mentioned or not, the service and equipment to be provided in



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- accordance with this specification shall conform in all aspects to the highest standard of engineering, design, quality and workmanship so that after completion of renovation/retrofitting by the Bidders, the Ash Handling System shall be capable of performing completely safe, reliable operation in a manner acceptable to the Owner.
- 03.03.04 All material, equipment and services necessary for designing, fabrication, delivery, erection, commissioning and making Ash Handling System ready for such safe, reliable and sustained operation considering ease of maintenance, accessibility, service life, availability etc. shall be provided by the Bidder. All such requisite goods & services shall be provided by the bidder to make the system complete, whether specified or not.
- 03.03.05 Bidder is advised to visit the site and collect any further information if required, to assess the present plant/equipment condition, before quoting against this specification. The Owner will provide all cooperation to the representative of the Bidder in obtaining the required information during the visit to site. Condition of the plant, equipment and system shall be carefully assessed by the Bidder for assessing the scope of work.
- 03.03.06 The Bidder shall furnish as per the data requirements in this specification, the complete list of proposed sub-vendors/vendors for the various items listed herein, their experience and other information required to establish their capabilities and performance of equipment.
- 03.03.07 The bid must include all the details called for in this specification.
- 03.03.08 Relevant Plant layout drawings have been furnished in the specification for the purpose of familiarization. The successful bidder shall be required to prepare additional drawings, write-ups, as may be required, for erection, commissioning and operation.
- 03.03.09 Any deviation or variation from the scope requirement or the intent of the specification shall be clearly brought out under the schedule of Technical/Commercial deviations, irrespective of the fact that such deviation/variation may be standard practice or possible interpretation of the specifications by the Bidder. In case no clear and specific deviation is taken by the bidder in the relevant schedule of deviation while making his bid proposal, it will be construed that the bidder has fully understood the intent of the specification and shall completely comply with the stipulations of the specification with regard to the objective to be achieved and scope of services and supplies to be provided by him. Further, unless otherwise specifically clarified by GSECL/BHEL during the bidding period, the interpretation by GSECL/BHEL in respect of scope, details and services to be performed by the Bidder shall be final and binding.
- 03.03.10 All specialized equipment/services necessary for proper erection, construction, commissioning and performance testing of all items of the Ash Handling System and accessories under this contract shall be arranged by the bidder. The cost of the same shall be included in the Contract price.
- 03.03.11 All necessary co-ordination with regard to sub-contracted equipment shall be carried out by the bidder. BHEL/GSECL will communicate only with the successful bidder for all matters pertaining to this contract.
- 03.03.12 All necessary civil works associated with above ash handling system shall be in BHEL scope. However, all civil design & drawing works including supervision of civil construction shall be in bidder's scope. The structural refurbishment work of collector tower, support fixtures for AHS pipes & instruments, cable trays, any miscellaneous platforms shall be in bidder's scope including supply of materials.



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- 03.03.13 This is R&M work and hence there may be fouling with the underground and above ground existing facilities. The drawing needs to be revised due to fouling with the existing facilities. Bidder shall note that any re-routing and modification work that will be suggested by the Bidder in such an eventuality shall be subject to GSECL/BHEL approval and, if required, Bidder shall modify his design to suit the actual site conditions. However, all over ground modification, rerouting of fouling/interference item, dismantling, re-erection work as desired by GSECL/BHEL during execution shall be done by bidder without any cost implication.
- 03.03.14 BHEL reserves the right to revise the schedules at his discretion in order to keep up the scheduled completion period and to suit the project commissioning requirement and such alterations shall not entitle the Bidder for any extra payment.
- 03.03.15 The General technical conditions pursuant to the contract, placed separately in this specification, shall form an integral part of the specification. These conditions shall supplement all the detailed technical specification and requirement identified in this specification.
- 03.03.16 All the material shall be jointly inspected by BHEL/BHEL TPI and GSECL as per approved QAP.
- 03.03.17 Bidder has to submit reference drawing/data sheet/sizing calculation etc. of other projects, as required by BHEL/GSECL for approval of the drawing of this project as per standard drawing approval using previous projects reference drawings.
- 03.03.18 Bidder's scope shall include the responsibility of technical co-ordination, preparation & finalization of drawing/documents, submission of engineering drawing/documents & processing for their approvals by BHEL/GSECL. Bidder shall be solely responsible for submission & getting the drawings/layouts/documents/QAPs etc. approved by GSECL/BHEL on timely basis.
- 03.03.19 In case of technical review meetings being conducted for fast approval of the drawings, bidder's designer shall attend the meeting to close the engineering related issue.
- 03.03.20 Bidder's designer shall visit the site frequently and whenever required to resolve the design/fouling/redesign due to fouling with the existing facilities. It is bidder's responsibility to resolve the fouling issues at site. BHEL and GSECL team will co-ordinate with the bidder to resolve the issue whenever required.
- 03.03.21 GSECL approved vendor list is part of this specification as Annexure – IV. In case of any additional Sub-vendor proposed by successful bidder, same shall be subject to approval by GSECL and GSECL's decision in this regard shall be final. To enable the approval of sub-vendors, the successful bidder should provide all necessary data such as type, design, make, capacity, duty conditions, date of commissioning/operation, etc. If any of the sub-vendor including bidder's own make does not have the approval of GSECL/BHEL, the same shall be replaced with GSECL/BHEL approved vendor without any price implication to BHEL. It is the complete responsibility of the successful bidder to obtain sub-vendor approval from GSECL/BHEL. Any delay in sub-vendor approval should not affect the project schedule.
- 03.03.22 For items/equipment required for ash handling system but details specification is not available in the tender, bidder would be required to clarify the same during enquiry or detailed engineering stage. These items shall be supplied as per detailed specification provided by GSECL.
- 03.03.23 Unloading, receipt & storage of the materials shall be in the scope of BHEL. In-plant movement of material from stores, storage of the materials during erection, security, etc. shall be in bidder's scope. For this purpose, closed shed shall be provided by bidder for the equipment which are susceptible



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- to damage due to weather conditions. For materials which can be stored in open yard, proper weather protection like tarpaulin, wooden support, etc. shall be provided by the bidder.
- 03.03.24 Supply of all the first fill and one year's topping requirements of consumable such as grease, oil, and lubricants servo fluids, essential chemicals etc. which will be required to put the equipment covered under the scope of specifications, into successful commissioning/initial operation and to establish completion to facilities. Consumables required for the initial flushing is also included in bidder's scope.
- 03.03.25 Scope of supply considered by BHEL is clearly mentioned in the specification. All other items, equipment required for completion of work shall be supplied by the bidder.
- 03.03.26 Surplus/waste materials shall be disposed by the bidder at GSECL/BHEL designated area.
- 03.03.27 Supply of nut, bolts, fasteners, gaskets & insulation materials required for completion of wet and dry ash handling system is in scope of bidder.
- 03.03.28 All equipment shall be supplied with foundation bolts. Supply of grouting cement & grouting of all mechanical equipment/items & its drives shall be in bidder's scope. Grouting of all the bases of equipment, minor chipping & make-up of pedestals/pockets shall be in bidder's scope. BHEL/BHEL's civil contractor shall provide only the foundation pockets pedestals wherever required as per the mechanical GA drawings.
- 03.03.29 Minor chipping if required [i.e. up to 50mm thick], micro-leveling and providing shim plates for erection of machines/equipment/items shall be in the scope of bidder. All pads, shims plates, resilient pads of neoprene rubber etc. is in bidder's scope.
- 03.03.30 Minor civil works, supply & fixing of anchor fasteners/embedment in ESP area for equipment foundation/supports is in scope of bidder.
- 03.03.31 Bidder shall make suitable arrangements for approach to work front for erection/overhauling of equipment.
- 03.03.32 Rust preventive painting after inspection at shop floor before dispatch & also at site as applicable, shall be in scope of bidder. Surface preparation & painting is in scope of bidder. The painting scheme/schedule shall be finalized during detailed engineering & is subject to GSECL/BHEL approval.
- 03.03.33 Successful bidder shall depute an engineer/supervisor & clerical staff with a computer at site for the total duration of the project. The engineer shall interface with other agencies for carrying out the works & shall resolve any issues at site.
- 03.03.34 Training of end-user engineers & technicians/operator is in scope of bidder. Bidder shall consider 6 engineers + 6 operator /technicians' training for one [1] week.
- 04.00.00 **ELECTRICAL SCOPE OF SUPPLY & WORKS**
- 04.01.00 Bidder to refer Annexure-VI for details of electrical scope of supply & works
- 05.00.00 **SPARES**
- 05.01.00 **Mandatory Spares**
- 05.01.01 List of Mandatory Spares to be supplied by the Bidder is listed in Annexure-III.
- 05.01.02 The Bidder shall indicate the prices for each of the item (except for items not applicable to the Bidders design) in the 'Schedule of Mandatory Spares' whether or not the Bidder considers it



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- necessary for the end-user to have such spares. If the Bidder fails to comply with the above or fails to quote the price of any spare item, the cost of such spares shall be deemed to be included in the contract price. The bidder shall furnish the population of each item in the Bid Forms & Price Schedules. Whenever the quantity is mentioned in “sets” the Bidder has to give the item details and prices of each item.
- 05.01.03 Whenever the quantity is indicated as a percentage, it shall mean percentage of total population of that item in the station (project), unless specifically mentioned otherwise, and the fraction will be rounded off to the next higher whole number. Also one set for the particular equipment. e.g. ‘set’ of bearings for a pump would include the total number of bearings in a pump. Also the ‘set’ would include all components required to replace the item; for example, a set of bearings shall include all hardware normally required while replacing the bearings.
- 05.01.04 The assembly / sub assembly which have different orientation (like left hand, right hand, top or bottom), different direction of rotation or mirror image positioning or any other regions which result in maintaining two different sets of spares to be used for subject assembly / sub-assembly shall be considered as different type of assembly/sub-assembly.
- 05.01.05 All mandatory spares shall be delivered at site separately & not along with the main equipment.
- 05.01.06 The spares shall be supplied to site based on the actual status of project & clearance from site.
- 05.01.07 Wherever quantity is specified both as a percentage and a value, the Bidder has to supply the higher quantity until & unless specified otherwise.
- 05.02.00 **Recommended Spares**
- 05.02.01 In addition to the spare parts mentioned above, the bidder shall also provide a list of recommended spares for 3 years of normal operation of the plant and indicate the list and total prices in relevant schedule of the Bid Forms & Price Schedules. This list shall take into consideration the mandatory spares specified in this Sub-Section and should be independent of the list of the mandatory spares. The end-user reserves the right to buy any or all of the recommended spares. The recommended spares shall be delivered at project site at least two months before the scheduled date of initial operation of first unit. However, the spares shall not be dispatched before the dispatch of the main equipment.
- 05.02.02 Prices of recommended spares will not be used for evaluation of the bids.
- 05.02.03 The price of these spares will remain valid up to 6 months after placement of Notification of Award for the main equipment. However, the bidder shall be liable to provide necessary justification for the quoted prices for these spares as desired by the end-user.
- 05.03.00 **Start-Up & Commissioning Spares**
- 05.03.01 Start-up & commissioning spares are those spares which may be required during the start-up and commissioning of the equipment/system. All spares used till the Plant is handed over to the end-user shall come under this category. The Bidder shall provide for an adequate stock of such start up and commissioning spares to be brought by him to the site for the plant erection and commissioning. They must be available at site before the equipment are energized. The unused spares, if any, should be removed from there only after the issue of Taking Over certificate. All start up spares which remain unused at the time shall remain the property of the Bidder.



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- 05.04.00 The Bidder shall indicate the service expectancy period for the spare parts (both mandatory and recommended) under normal operating conditions before replacement is necessary.
- 05.05.00 All spares supplied under this contract shall be strictly inter-changeable with the Parts for which they are intended for replacements. The spares shall be treated and packed for long storage under the climatic conditions prevailing at the site e.g. small items shall be packed in sealed transparent plastic with desiccators packs as necessary.
- 05.06.00 All the spares (both recommended and mandatory) shall be manufactured along with the main equipment components as a continuous operation as per same specification and quality plan.
- 05.07.00 The Bidder will provide the End-user with cross-sectional drawings, catalogues, assembly drawings and other relevant documents so as to enable the End-user to identify and finalize order for recommended spares.
- 05.08.00 Each spare part shall be clearly marked or labeled on the outside of the packing with its description. When more than one spare part is packed in a single case, a general description of the content shall be shown on the outside of such case and a detailed list enclosed. All cases, containers and other packages must be suitably marked and numbered for the purposes of identification.
- 05.09.00 All cases, containers or other packages are to be opened for such examination as may be considered necessary by the End-user.
- 05.10.00 The Bidder will provide the End-user with all the addresses and particulars of his sub-suppliers while placing the order on vendors for items / components / equipment covered under the Contract and will further ensure with his vendors that the End-user, if so desires, will have the right to place order for spares directly on them on mutually agreed terms based on offers of such vendors.
- 05.11.00 The Bidder shall warrant that all spares supplied will be new and in accordance with the Contract Documents and will be free from defects in design, material and workmanship.
- 05.12.00 The Bidder shall guarantee the long term availability of spares to the End-user for the full life of the equipment covered under the Contract. The Bidder shall guarantee that before going out of production of spare parts of the equipment covered under the Contract, he shall give the End-user at least 2 years advance notice so that the latter may order his bulk requirement of spares, if he so desires. The same provision will also be applicable to Sub-vendors. Further, in case of discontinuance of manufacture of any spares by the Bidder and/or his Sub- vendors, Bidder will provide the End-user, two years in advance, with full manufacturing drawings, material specifications and technical information including information on alternative equivalent makes required by the End-user for the purpose of manufacture / procurement of such items.
- 06.00.00 **TERMINAL POINTS & EXCLUSIONS**
- 06.01.00 **Terminal Points**
- 06.01.01 The principle terminal points for Fly ash extraction/conveying system are detailed below. Within following termination points the bidder shall supply and erect all mechanical and electrical equipment, control and instrumentation and mechanical and electrical services and entire structural works including supports, platforms, etc. as specified and as required for a complete ash handling system.
- 06.01.02 ESP hopper outlet flange.



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GSECL Wanakbori TPS Units 4, 5 & 6 (3X210
MW)**

Specification No.
IS-1-19-2019/ 001

- 06.01.03 GSECL's connection point for ash water, service water
- 06.01.04 Fly disposal system up to hydro vector including hydro vector.
- 06.01.05 End of Drain piping on slurry water and air lines
- 06.01.06 Common terminal point of cooling and service water near boiler area.
- 06.01.07 Common terminal point of service air & instrument air near boiler area.
- 06.01.08 Note: **Whatsoever fouling foreseen, unforeseen, of major or minor nature, encountered for retrofitting of ESP is in Bidder's scope. Bidders have to load their offers accordingly.**
- 06.01.09 Inlet and outlet terminal of PLC/Control desk (UPS cable supply and E&C is in bidder's scope).
- 06.02.00 **Exclusions**
- 06.02.01 Ash slurry disposal system.
- 06.02.02 Silo system
- 06.02.03 Complete civil work pertaining to building construction, pipe rack/ equipment foundation.
- 06.02.04 Transformer, HT MCC, control & instrumentation cable supply, cable tray supply.
- 06.02.05 Firefighting equipment and supply mains.
- 06.02.06 Potable water.
- 07.00.00 **INSPECTION & TESTING**
- 07.01.00 During detail engineering the QAP shall be submitted for approval. The Customer hold point shall be decided by the GSECL. The materials falling under Customer Hold points shall be Inspected/ witnessed by the representative of GSECL and material should be dispatched after receipt of MDCC /waiver only.
- 07.02.00 Those materials not falling under customer hold point shall be supplied without MDCC, but bidder's inspection reports as per QAP shall be submitted.
- 07.03.00 The Bidder shall at its own expense carry out at the place of manufacture and / or on the Site all such tests and / or inspections of the Plant and Equipment and any part of the Facilities as are specified in the Contract.
- 07.04.00 The End-user and the Project Manager or their designated representatives shall be entitled to attend the aforesaid test and / or inspection, provided that the End-user shall bear all costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and boarding & lodging expenses.
- 07.05.00 Whenever the Bidder is ready to carry out any such test and / or inspection, the Bidder shall give an advance notice prior to 7 (seven) working days of such test and/or inspection and of the place and time thereof to the Project Manager. The Bidder shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the End-user and the Project Manager (or their designated representatives) to attend the test and/or inspection.
- 07.06.00 The Bidder shall provide the Project Manager with a certified report of the results of any such test and/or inspection. If the End-user or Project Manager (or their designated representatives) fails to attend the test and/or inspection, or if it is agreed between the parties that such persons shall not do so, then the Bidder may proceed with the test and/or inspection in the absence of such persons, and may provide the Project Manager with a certified report of the results thereof.



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- 07.07.00 The Project Manager may require the Bidder to carry out any test and/or inspection not required by the Contract, provided that the Bidder's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impede the progress of work on the Facilities and/or the Bidder's performance of its other obligations under the Contract, due allowance will be made in respect of the Time for Completion and the other obligations so affected.
- 07.08.00 If any Plant and Equipment or any part of the Facilities fails to pass any test and/or inspection, the Bidder shall either rectify or replace such Plant and Equipment or part of the Facilities and shall repeat the test and/or inspection upon giving a notice under Sub-Clause (iii) above.
- 07.09.00 If any dispute or difference of opinion shall arise between the parties in connection with or arising out of the test and/or inspection of the Plant and Equipment or part of the Facilities that cannot be settled between the parties within a reasonable period of time, it may be referred to the competent authority of GSECL.
- 07.10.00 The Bidder shall afford the End-user and the Project Manager, at the End-user's expense, access at any reasonable time to any place where the Plant and Equipment are being manufactured or the Facilities are being installed, in order to inspect the progress and the manner of manufacture or installation, provided that the Project Manager shall give the Bidder a reasonable prior notice.
- 07.11.00 The Bidder agrees that neither the execution of a test and / or inspection of Plant and Equipment or any part of the Facilities, nor the attendance by the End-user or the Project Manager, nor the issue of any test certificate pursuant to Sub-Clause (iv) above, shall release the Bidder from any other responsibilities under the Contract.
- 07.12.00 No part of the Facilities or foundations shall be covered up on the Site without the Bidder carrying out any test and/or inspection required under the Contract. The Bidder shall give a reasonable notice to the Project Manager whenever any such parts of the Facilities or foundations are ready or about to be ready for test and/or inspection; such test and/or inspection and notice thereof shall be subject to the requirements of the Contract.
- 07.13.00 The Bidder shall uncover any part of the Facilities or foundations, or shall make openings in or through the same as the Project Manager may from time to time require at the Site and shall reinstate and make good such part or parts. If any part of the Facilities or foundations have been covered up at the Site after compliance with the requirement of Sub- Clause (x) above and are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating and making good the same shall be borne by the End-user and the Time for completion shall be reasonably adjusted to the extent that the Bidder has thereby been delayed or impeded in the performance of any of its obligations under the Contract.
- 08.00.00 **CONSTRUCTION POWER & WATER**
- 08.01.00 The successful bidder shall submit within 3 weeks from the date of letter of award, his electrical power requirements for each ESP area, if any, to allow the planning of the same by GSECL. The LT electric power will be made available at single point for each ESP. Further extension will have to be carried out by the bidder as per requirement at their cost. The necessary charges will be recovered as per the tariff rate of GSECL / Madhya Gujarat Vij Company Limited (MGVCL) from time to time.



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- 08.02.00 Power supply for labor and staff colony shall be provided at one point to be decided by GSECL and bidder shall be charged at rates as referred above.
- 08.03.00 Free Supply of Service Water will be made available for construction and drinking purpose at a single point at works site to be decided by GSECL.
- 08.04.00 Free Supply of Service air shall be provided at one point for each ESP near boiler area to be decided by GSECL.
- 08.05.00 Land for staff and labor colony shall not be provided by GSECL and bidder has to make his own arrangement for the same at his own cost.
- 08.06.00 All the tools and tackles including Cranes/loading-unloading arrangements/any other special tools and tackles shall have to be arranged by bidder at their own cost. List of tools & tackles to be supplied by bidder is attached as Annexure XI.
- 08.07.00 Area lighting shall be provided by GSECL as per its own scheme. However, any additional lighting required for the safe execution of the work shall be arranged by the bidder. Any damage caused due to inadequate lighting shall be made good by the bidder at his own cost.

09.00.00 **DRAWINGS/DOCUMENTS/CORRESPONDENCE DISTRIBUTION SCHEDULE**

Sl. No.	Item	CE (P&P), CO., Vadodara	CE (Gen), Wanakbori TPS	Equipment Vendor/Bidder	Remarks
1	Preliminary	4	2	S	Note: All the Correspondence for the project should be exclusively through courier services/e-mail only to expedite the matter. S: Source of document generation
2	Return preliminary drawings with Comments	S	1	1	
3	Revised Drawings	2	2	S	
4	Approval of Drawings	S	1	1	
5	Final Drawings	2	6	S	
6	As Built Drawings	2+Soft copy	6+Soft copy	S	
7	Progress Report (Monthly) by Vendor	2	2	S	
8	Test & Inspection Reports	2	2	S	
9	Instruction Data Manual [O&M Manual] Book	2	10	S	