

<u>NTPC LTD</u> VENDOR ENLISTMENT FOR O&M WORKS PACKAGE ON PAN NTPC BASIS		
1	CEG No.	BMD-26
2	Brief description of CEG	Post Operational Chemical Cleaning of Boiler.
3	Responsibility Centre	VEC
4	Brief scope of work	The scope includes the following: 1.The vendor has to submit the detailed procedure for chemical cleaning, however as per NTPC –R&D (NETRA) the following guidelines may be used. 01.Alkali Boil out, 02. Super heater filling and pressurization, 03.water washing (cold & hot rinse), 04.Alkaline copper removal employing citric acid & potassium bromate, 05.Inhibited Hydrochloric Acid pickling (employing Ammonium bifluoride & thiourea) for removal of Iron oxides & Cu deposits , 06. DM water rinse , 07. Citric acid rinse, 08.DM rinse, Soda ash Neutralization 09. One/ two stage Passivation. The procedure for chemical cleaning shall be jointly discussed by NTPC-OS , NTPC-R&D (NETRA), NTPC-Station/Project with the Vendor & Vendor shall have to carry out the chemical cleaning as per mutually agreed procedure. 2. The successful bidder has to carry out the following: a) Associate with NTPC for testing of inhibitor and chemicals at NTPC lab. b) The chemical cleaning, handling of chemicals (Loading ,Unloading and transfer) and chemical control by setting local lab., during the process. c) Carrying out the laboratory testing during chemical cleaning. For this bidder has to provide a dedicated and qualified team round the clock. d) Design, Supply, erection & supervision of the erection of temporary pipelines and pumps hydro test of all the temporary pipelines as per requirement and dismantling the same after chemical cleaning.(All temporary pilings shall be erected and tested properly as per procedure including providing supports wherever required.) e) Neutralization of the spent acid & other chemicals: all effluents generated as a result of chemical cleaning shall be first brought to neutralization pit of WTP for proper neutralization before disposal. f) Design and provision of orifices and plugs for down comers and super heaters tubes, fixing and dismantling them. g) Design and providing of the following. - Solution preparation tank(s) of appropriate capacity. - Temporary piping of different sizes required for chemical cleaning and Neutralisation - Valves of different sizes. - Suitable motors, starters, isolators and instrumentation. - Orifices and plugs for down comers and super heaters (if applicable). - Nitrogen purging system. - Suitable pumps with sufficient standby / backup for chemical cleaning and Handling/transfer. 3. The successful bidder has to arrange Supervisory Staff and Fabrication crew as required for the site, to complete the job as per schedule.

	4. The successful bidder has to take the following Safety precautions: - During chemical cleaning all safety aspects will be adhered to in handling hazardous chemicals, safety appliances as deemed fit should be provided. - For uninterrupted chemical cleaning, provision of back up power supply. - Safety of all men and materials engaged in boiler chemical cleaning. - A Safety supervisor had to be arranged round the clock for ensuring safety during work execution. 5. After 1ST stage passivation, water touched surfaces to be inspected jointly for removal of deposits. Loose deposits if any in the boiler drum shall have to be removed manually. Orifices & plugs, temporary connections if any to be removed, drum internals to be retrofitted. 6. Minimum two no. of tube samples from high heat flux zone to be taken out to evaluate & assess the efficiency of chemical cleaning. 7. Association during last stage of passivation till final synchronization of the unit In addition to above, the following will also constitute the scope of work of the agency/ Vendor 1. Transportation from their site to the NTPC site and back to their site the mixing tank, circulating pumps, required no. of valves of various sizes and diameters, headers, pipelines and steam header for cleaning and neutralization. 2. Mobilization of required no. of trained and experienced staff of various categories for the execution of the work in smooth manner. 3. Necessary electrical equipment such as control panel, starters and cables for the motors of circulation pumps and acid transfer pumps. 4. Design, Supply and installation & removal of super heater plugs and orifice plates for the down comers. 5. High pressure gas regulating valve header assembly for connecting Nitrogen Cylinders. 6. Execution of complete process including detail Engineering and monitoring the process with NTPC laboratory up to passivation. 7. Manual cleaning of loose debris and other impurities from the drum after its opening for inspection. 8. Necessary Fabrication & Erection (Including consumables) of temporary chemical cleaning circuit with main boiler. 9. Temporary piping required for D.M water supply, compressed air supply , acid unloading and transfer shall be arranged and erected and removal after completion of job ,by the agency. NTPC'S SCOPE 1. Arrangement for alkali boil out shall be done by NTPC. However, procedure for same shall be given by the agency. 2. All the chemicals & gases required for the chemical cleaning or as specified in the Tender. 3. Mobile crane/ hydra facility shall be provided free of charge for loading and unloading of materials. 4.. All drum internals Removal before starting the job and reaffixing after completion of job will be carried out by NTPC. 5.. Necessary cutting and re welding IBR connections of bottom header stubs and drainpipes will be done by NTPC. 6.Cutting and welding of high-pressure tubes, hand holes attached to boiler. 7.Adequate storage facilities for Chemicals and equipment in a closed room to protect them from rain fall till the completion of the job. 8.Adequate power supply, service water, auxiliary steam and DM water will be provided by NTPC on free of cost including emergency power supply (600 KW/415V/50Hz/3 Phase AC Power supply to agency/Vendor's MCC Panel. 9.Providing Effluent neutralization pit 2000 M3 with acid proof lining nearest to the boiler within 200 meters. 10. Intermediate operation of BCP during chemical cleaning. 11.Fire tender, Ambulance and Illumination facility at Chemical cleaning area. 12. Boiler tube analysis' before and after chemical cleaning
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5.	Technical Qualifying requirements	The Applicant must have executed the work of chemical cleaning of at least one no. of 500 MW or above Boiler during last five years from the date of application.
	Document to be submitted by Vendor in support of meeting QR	Relevant PO copy & Client's Completion Certificate/RA bill/Final Deviation Statement and other documents mentioned elsewhere

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6	Additional Documents to be submitted	In addition to the documents required in support of meeting Technical Qualifying Requirements as stated above, following documents are required to be submitted by the Applicants applying for enlistment:- i. Three POs with BOQ of the highest executed values of similar work during previous five years from the date of application and Copy of Completion Certificate /RA Bill/Final Deviation Statement from the concerned client in support of successful execution of work against each of the POs to be submitted. ii. Audited balance sheet including Profit & Loss statement for the previous three completed financial years reckoned from the date of application. In case, the audited documents are not ready/available, then certified copy of financial statement by a registered practicing chartered accountant may be submitted. iii. NSIC / SSI / MSME registration certificate iv. PF and GST/Service Tax registration certificate v. Any other documents in addition to the above which the applicant wants to submit.
7	NOTES:	1.0 Similar work means: Work of chemical cleaning of Boiler of 500 MW or above. 2.0 Value means basic value of the PO. Where PO value is composite (i.e. including Service taxes etc.), the applicant has to give break-up of composite PO value mentioning basic value, taxes etc. Executed value of contracts shall include escalation amount because of price adjustment, if any, in the contract.