

SPEC. NO.  
TCE.5432A-H- 500-  
001

**4 x 800 MW COAL BASED SUPER CRITICAL  
THERMAL POWER STATION**

SECTION - A3

TITLE

**BID QUALIFICATION REQUIREMENTS**

SHEET 1 OF 13



**JSW ENERGY LIMITED  
4 X 800 MW SUPER CRITICAL TPP**

**CORRIGENDUM-1  
To  
BID QUALIFICATION REQUIREMENTS  
For  
STEAM GENERATOR PACKAGE  
and/or  
STEAM TURBINE & GENERATOR  
PACKAGE**



**TCE CONSULTING ENGINEERS LIMITED**

**73/1, ST. MARK'S ROAD,  
BANGALORE - 560 001  
INDIA  
MAY 2008**

## **SCOPE OF WORK**

### **1. Scope**

The Contractor shall be responsible for Design, Engineering, Manufacturing, Testing at Manufacturing Works before despatch, supply, loading and unloading, storage, transportation to site, Erection, Commissioning, Installation testing, Trial Runs, Performance Testing of Steam Generator package and/or Steam Turbine and Generator package with supercritical parameters ,with sliding pressure operation for 4x800MW units.

The brief scope of work of the Bidder shall include, but not be limited to the following:

#### **FOR STEAM GENERATOR PACKAGE**

- a. Steam generators and auxiliaries
- b. Complete HP and LP piping within the package
- c. Associated electrical equipment and systems like all drive motors, SBMCC( soot blowing), ESPMCC, all outgoing cables from MCCs to respective loads of SB system and ESP system.
- d. Control and Instrumentation system for SG package including field instruments, Flow elements, control valve/dampers, SG integral control and other special mounting / analysis systems with interconnected cabling.
- e. Training of O & M personnel
- f. Obtaining all approvals / consents / permits required for executing the work covered during construction and commissioning

#### **FOR STEAM TURBINE AND GENERATOR PACKAGE**

- a. Steam turbine and generators and auxiliaries
- b. Condensate and Feed cycle equipment and system including condenser
- c. Associated electrical equipment like all drive motors, GRP, GCP, LAVT, NGR, Excitation system, Auto synchroniser, AVR and related cables
- d. Complete HP and LP piping within the package
- e. Control and Instrumentation system for TG package including field instruments, Flow elements, control valve/dampers, TG integral control, Station DCS, and other special mounting / analysis systems with interconnected cabling.
- f. Training of O & M personnel
- g. Obtaining all approvals / consents / permits required for executing the work covered during construction and commissioning

**ELIGIBILITY CRITERIA**

**1. BASIC ELIGIBILITY CRITERIA**

- a. Bids are invited from parties, satisfying the eligibility conditions laid down below, on or before the last date for submission of the QUALIFICATION DOCUMENTS. Bids from parties not satisfying the criteria will not be considered for evaluation.
- b. No affiliate of JSWEL shall be eligible to apply. No firm (or its affiliates or parent company) which is providing consulting services in relation to this project shall be eligible to apply.
- c. The Bidder shall provide the satisfactory evidence that the Bidder and / or where applicable, its associates / partners
  - i. is a manufacturer, who regularly manufactures equipment of the type specified and / or undertakes the type of works specified and has adequate technical knowledge and relevant experience with requisite engineering and infrastructure for project management and execution.
  - ii. does not anticipate a change in ownership during proposed period of execution of work. (if such change is anticipated, the scope and effect thereof shall be defined.)
  - iii. has adequate financial stability and status to meet the financial obligations pursuant to the works covered in the Bid qualification documents as per Cl 3.0 of this section. Has adequate design, manufacturing capacity available to perform the work properly and expeditiously within the time period specified. The evidence shall specifically cover, with written details, installation, manufacturing capacities and present commitment (excluding those anticipated under this pre-qualification documents). If the present commitment are such that the installed capacity results in an inadequacy of manufacturing capacities to meet the requirements appropriate to the works covered in this pre-qualification document then the details of the alternative arrangements to be organized by the Bidder and / or his associate / partner for this purpose shall be furnished and same shall be subject to JSWEL's approval and acceptance.
  - iv. has an adequate project management organization, capable of executing the project under consideration, covering the areas related to engineering of equipment / systems, interface engineering procurement of equipment and the necessary field services required for successful construction, testing and commissioning of all the power plant equipment and systems

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covered in the scope of work of SG & Auxiliaries and/or STG & Auxiliaries, under this document and has established quality assurance systems and organization designed to achieve high levels of equipment / system reliability both during his manufacturing and / or fabrication and field installation activities.

- d. The Bidder / manufacturer (other than Indian Bidders / Manufacturers) shall have the experience of successfully executing installation of atleast one (1) no. Supercritical, pulverised coal fired, steam generator and its auxiliaries and/or one(1) no. Steam turbine generator and its auxiliaries, of capacity 500MW or above, outside his country, which must be under successful operation for 2 years, as on the last date of submission of Bid.

## **2. TECHNICAL ELIGIBILITY CRITERIA**

**In addition to the general requirements stipulated above, the Bidder should also meet the qualifying requirements stipulated hereunder as per clause 2a Category I or 2b Category II as the case may be.**

### **2a CATEGORY I**

#### **2a i. (Applicable only for Steam Turbine and Generator package)**

Bidder should have designed, engineered, manufactured, tested, erected / supervised erection and commissioned at least one steam turbine and generator of 500 MW or higher capacity for supercritical power plant of the type proposed to be offered by the Bidder for the project (with main and reheat steam temperature not less than 535 °C ). The above Steam Turbine and Generator shall be in successful operation for a period of not less than two (2) years as on the last date of submission of Bid.

#### **2a ii. (Applicable only for Steam Turbine and Generator package)**

The Bidder who meets the above requirements with respect to steam turbine and does not manufacture 500MW or higher capacity Generators OR the Generators manufactured by him do not meet the above requirements fully or if he intends to offer Generator of another manufacturer, would also qualify if he associates / collaborates with Generator manufacturer who meets the above requirements fully in respect of Generator and sources the 500MW or higher capacity Generator from the associate/collaborator. In such a case the Bidder shall furnish along with his Bid, an undertaking jointly executed with associate/collaborator for the successful performance of the Turbine generator. The Deed of Joint undertaking shall be submitted along with the Bid, failing which the Bid shall be liable to be rejected. In case of award, the associate/collaborator will be required to furnish an on demand bank guarantee for 1(one) percent of contract price in addition to contract performance security to be furnished by the Bidder. However, total responsibility of drive and driven equipment shall be of the Bidder.

**OR**

#### **2a iii (Applicable only for Steam generator package)**

Bidder should have designed, engineered, manufactured, tested, erected/ supervised erection and commissioned at least one supercritical pulverised coal fired steam generator of 500 MW or higher capacity (with main and reheat steam temperatures not less than 540° C). The above

steam generator should be in successful operation for a period of not less than two (2) years as on the last date of submission of Bid. Further such steam generator should be of the type specified i.e., single pass (Tower type) or two pass using either spiral wound or vertical plain / rifled type water wall tubing . In addition the steam generator should have been provided with Evaporator suitable for variable pressure operation (Super critical and subcritical pressure ranges.) The bidder shall offer only the type of steam generator and type of water wall tubing for which he is qualified.

**2b. CATEGORY II – LICENSEE / COLLABORATOR / JOINT VENTURE COMPANY**

**IN CASE SG OR STG MANUFACTURER IS A LICENSEE / ASSOCIATE / COLLABORATOR, HE SHALL MEET THE FOLLOWING REQUIREMENTS:**

**2b i . (Applicable only for Steam Turbine and Generator package)**

The Bidder should have designed, engineered, manufactured, erected / supervised erection, commissioned / supervised commissioning of at least one (1) number of reheat type of **Steam Turbine and Generator set** of 500 MW or above capacity and which is in successful operation for atleast two (2) years as on the last date of submission of Bid and is a LICENSEE of a manufacturer or ASSOCIATE / COLLABORATOR with manufacturer(s) of steam turbine and generator meeting the requirements of **2 a i or 2aii** above.

In such an event the Bidder shall furnish undertaking(s) jointly executed by him and his ASSOCIATE / COLLABORATOR for successful performance of the steam turbine generator sets and its auxiliaries as per format enclosed in the Bid documents. The joint deed(s) of undertaking shall be submitted along with the Bid, failing which the Bid shall be liable to be rejected.

In case of award, the ASSOCIATE / COLLABORATOR will be required to furnish an on demand bank guarantee for 3 (three) percent of the total contract price in addition to the contract performance securities to be furnished by the Bidder.

**OR**

**2b ii. (Applicable only for Steam generator package)**

The Bidder should have designed, engineered, manufactured, erected /supervised erection, commissioned/supervised commissioning at least one (1) no. coal fired **steam generator** for a 500 MW or higher size unit which is in successful operation for a period of not less than two (2) years as on the last date of submission of Bid and should be a LICENSEE of a manufacturer or ASSOCIATE/COLLABORATOR with a manufacturer of steam generator who satisfies the qualification requirements specified in **2 a iii** above.

In such an event the Bidder shall furnish undertaking jointly executed by him and his ASSOCIATE /COLLABORATOR for the successful performance of the steam generators and auxiliaries as per the format enclosed with the Bid document. The deed of joint undertaking shall be submitted along with the Bid, failing which the Bidder shall be disqualified and his Bid shall be rejected.

In case of award, the ASSOCIATE/COLLABORATOR will be required to furnish a separate on demand bank guarantee for 3 (three) percent of the total contract price in addition to the contract performance securities to be furnished by the Bidder.

**2b iii. . (Applicable for both Steam generator package and Steam Turbine and Generator package)**

In case the manufacturer is a LICENSEE for pulverised coal fired super critical steam generator or steam turbine and generator , the LICENSEE shall meet the following requirements:

Any design including engineering undertaken by the LICENSEE shall be approved and vetted by the LICENSOR and shall include as minimum the following.

- a. Performance calculations for SG and their Auxiliaries or STG and their Auxiliaries,
- b. **(Applicable only for Steam generator package):**

- i. Thermal and Hydraulic design of steam generators and their auxiliaries for safe and reliable operation,
  - ii. Selection of auxiliaries for steam generators,
  - iii. Design of controls, protections and interlocks for steam generator and auxiliaries,
  - iv. Providing all design data required to carry out design/selection of balance equipment/systems for steam generators and auxiliaries and for proper interfacing and integration,
- c. **(Applicable only for Steam Turbine and generator package)**
- i. Thermal design of turbine cycle including heat balance,
  - ii. All interface design data required to carryout the design of balance equipment/steam turbine cycle and for proper interfacing and integration.

**(Applicable for both Steam generator package and Steam Turbine and Generator packages)**

All the relevant documents vetted by the licensor shall be submitted to the OWNER / PURCHASER.

Manufacture by the LICENSEE shall be done with the approval of the LICENSOR and OWNER / PURCHASER under a quality assurance program approved and monitored by the LICENSOR.

The LICENSING agreement should be valid at least for a period of five(5) years from the date of submission of Bid document of the proposed unit.

In case of award of the contract, the LICENSOR of the LICENSEE will be required to furnish bank guarantee of 3 (three) percent of the total contract price separately for steam generators and steam turbine generators as applicable. This bank guarantee shall be in addition to the bank guarantee towards contract performance security to be furnished by the Bidder

LICENSEE shall obtain a certification from his LICENSOR that his (LICENSEE's ) manufacturing and shop testing facilities are adequate to meet the standards of the LICENSOR and to meet the specified performance requirements of the equipment being supplied

LICENSOR shall post suitable personnel at manufacturer's works to supervise and ensure acceptable quality standards during manufacture and stage inspection; and also for site services as required by OWNER/PURCHASER.

LICENSOR's technical support will be made available as required by the OWNER/PURCHASER in answering OWNER/PURCHASER's technical queries by way of correspondence and participation in coordination meetings during the execution of the contract.

#### **IN CASE OF JOINT VENTURE COMPANY**

##### **(Applicable for both Steam Generator and Steam Turbine and generator packages)**

- 2b iv** . The Bidder shall be a joint venture (JV) company incorporated in India with a ) an Indian company and b) a steam generator / steam turbine generator manufacturing company , herein after referred to as " Joint venture Partner – SG Manufacturer or LICENSEE / Joint venture partner STG manufacturer or LICENSEE ", as promoters for the purpose of manufacturing supercritical Steam Generators or Steam Turbine and Generators in India and shall meet the following requirements :
- a . The " Joint venture Partner – SG Manufacturer or LICENSEE / Joint venture Partner – STG Manufacturer or LICENSEE" shall meet the qualification requirements specified in clause **2aiii or 2ai / 2aii or 2bii/ 2bi.**
  - b . The " Joint venture Partner – SG Manufacturer or LICENSEE / Joint venture Partner – STG Manufacturer or LICENSEE " shall maintain a minimum equity participation of 26% in the JV company for a period of 7 years from the date of incorporation of JV company
  - c. One of the promoters shall be a majority stake holder who shall maintain a minimum equity participation of 51% in the JV company for a period of 7 years from the date of incorporation of JV company.

- d. In the event that the majority stake holder is other than the “ Joint venture Partner – SG Manufacturer or LICENSEE / Joint venture Partner – STG Manufacturer or LICENSEE” it should have executed in the last 10 years large industrial projects on Turnkey basis( with or without civil works) in the area of power / steel / oil& gas / petro – chemical / Fertilizer or any other process industry with total value of such projects being Rs. 10000 Million or more. At least one of such projects should have a contract value of Rs.4000 Million or more. This project shall be in successful operation for a period of not less than two(2) years as on the last date of bid submission.
- e . The “ Joint venture Partner – SG Manufacturer or LICENSEE / Joint venture Partner – STG Manufacturer or LICENSEE” and the JV company should have valid ongoing technology transfer agreement for the type, size and rating of the steam Generator or Steam turbine and generator specified valid at least for a period of five(5) years from the date of submission of Bid document. The Bidder and The “ Joint venture Partner – SG Manufacturer or LICENSEE / The Bidder and The “Joint venture Partner – STG Manufacturer or LICENSEE” shall be required to furnish an undertaking in this regard with the bidding documents for transfer of technology which shall be supported by Board resolution.
- f . The Bidder shall furnish a deed of joint under taking executed between the Bidder and the promoter companies towards the Bidder and the majority stake holder being jointly and severally liable to the Owner for successful performance of the contract,

and

The Bidder and the “ Joint venture Partner – SG Manufacturer or LICENSEE / Joint venture Partner – STG Manufacturer or LICENSEE” being jointly and severally liable to the Owner for successful performance of the SG and Auxiliaries / STG and Auxiliaries.

The deed of joint undertaking shall be submitted along with bid , failing which the bid shall be liable to be rejected. In case of award , each promoter company shall be required to furnish separate on demand bank guarantee for an amount equal to 1(one) percent of the total contract price in addition to the contract performance security to be furnished by the bidder.

### **3.0 FINANCIAL ELIGIBILITY CRITERIA**

- a. The average annual turnover of the Bidder for Steam Generator and Steam turbine generator and their auxiliaries package ( Sole, JV, total of consortium partners) in the last three (3) consecutive financial years as on the last date of submission of Bid, shall not be less than 375 million US dollars or equivalent.

In addition, The net worth of the bidder as on the last day of the preceding financial year shall not be less than 100 % of the paid-up share capital.

In case the bidder is not able to furnish its audited financial statements on stand alone entity basis, the un-audited unconsolidated financial statements of the bidder can be considered acceptable provided the bidder furnishes the following further documents on substantiation of its qualification:

- i) Copies of the un-audited unconsolidated financial statements of the bidder along with copies of the audited consolidated financial statements of the Holding Company.
- ii) A Certificate from the CEO/CFO of the Holding Company, stating that the unaudited unconsolidated financial statements form part of the Consolidated Annual Report of the company.
- b. In cases where audited results for the preceding financial year are not available, certification of financial statements from a practicing Chartered Accountant shall be considered acceptable.
- d. In case a bidder does not satisfy the financial criteria, stipulated at clause 3a above on its own, the holding company would be required to meet the stipulated turnover requirements at clause 3a above, provided that the net worth of such holding company as on the last day of the preceding financial year is at least equal to or more than the paid-up share capital of the holding company. In such an event, the bidder would be required to furnish along with its bid, a Letter of Undertaking from the holding company, supported by Board Resolution, pledging unconditional and irrevocable financial support for the execution of the Contract by the bidder in case of award.

- d. Financial criteria for “Joint Venture Partner-SG Manufacturer and / or Joint Venture Partner – STG Manufacturer ” not being a majority stake holder:
- i. The average annual turnover, in the preceding three (3) financial years as on the date of bid opening, shall not be less than 375 million US dollars or equivalent.
  - ii. The Net Worth as on the last day of the preceding financial year shall not be less than 100% of the paid-up share capital.
- e. Bidder shall submit his audited balance sheet for last three (3) years and in case of consortium the audited balance sheet of each of the consortium members shall be submitted as part of response to Bid document. The Bidder is also requested to submit the following:
- i. In case of consortium, consortium agreement shall be valid till expiry of warrantee period of proposed contract. Copy of consortium agreement shall be submitted along with the Bid.
  - ii. The Bidder shall provide copies of the business reports and audited annual reports of the last three (3) years.
  - iii. Credit rating by reputed and approved agencies

**4.0 Notwithstanding anything stated above , the OWNER / PURCHASER reserve the right to assess the capabilities and capacity of the BIDDER / his COLLABORATORS / ASSOCIATES / JV PARTNERS to perform the contract , should the circumstances warrant such assessment in the overall interest of the OWNER / PURCHASER.**

**5.0 Any time prior to the deadline for submission of Bid, Owner may for any reasons, whether at their own initiative or in response to clarifications requested by Bidders, modify the Bid qualification requirements in order to have wider participation amongst Bidders, by amendment. The amendment will be notified in writing to all Bidders (at the address indicated at time of purchase of enquiry specification) who have collected the enquiry and will be binding on them. The Bidder shall acknowledge the receipt of the amendment promptly upon the receipt**

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**of the same. In order to afford Bidders time in preparing of Bid due to amendment, Owner may, at his discretion extend the deadline set for submission of the Bid.**

**6.0 JSWEL reserves the right to reject any or all responses to Bid Qualification Requirements or cancel/withdraw the process without assigning any reason whatsoever and in such case no applicant/intending applicant shall have any claim arising out of such action.**