

Central Electricity Authority  
Office of Member (Thermal)  
9<sup>th</sup> Floor (South) Sewa Bhawan  
Rama Krishna Puram New Delhi-110066

No. CEA/TE&TD-TT/2017/D-12/ 94-147

Dated : 27<sup>th</sup> Jan. 2017

To

All Central Sector/State Sector Thermal Power Generating Cos. As per list.

Subject : Sourcing of supercritical units from indigenous manufacturers.

Dear Sir,

Reference is invited to our letter No. CEA/TE&TD-TT/2010/D-12 dated 2<sup>nd</sup> February, 2010 on the above subject, inter-alia, advising to incorporate the condition of setting up of phased indigenous manufacturing facilities in the bids to be invited for boilers and turbine-generators of supercritical projects till October 2012 by Central/State Sector power generating companies and vide letter No. CEA/TE&TD-TT/2013/D-12 dated 30<sup>th</sup> August, 2013 extending the same till October, 2015.

2. The period of advisory has expired in October, 2015. Accordingly, the matter has been considered by MoP and it has been decided that the said advisory be extended for further period of 3 (three) years from date of issue. The advisory has been slightly modified to include Indian qualified manufacturers. The technical parameters would be the same as specified by CEA Regulations, 2010.

3. Accordingly, you may like to incorporate the condition of setting up of phased indigenous manufacturing facilities, in the bids to be invited in next three years by Central/State sector power generating companies for boilers and turbine-generators of supercritical projects.

Yours faithfully,



(Ravindra Kumar Verma)  
Member (Thermal)

## Annex 1

### Categories of eligible bidders for bidding for boilers and STGs

- i. A foreign '**qualified**' supercritical boiler manufacturer (or a supercritical turbine manufacturer, as the case may be). Such bidder, however, should have registered a Subsidiary *IJV* company for manufacturing of supercritical boilers (or turbine) in India. The bidder in this case must maintain an equity participation of minimum 51% in the Subsidiary or minimum 26% in the JV company during lock in period of 7 years from the date of incorporation of the Subsidiary / JV company or upto the end of the Contract warrantee period, whichever is later.
- ii. An Indian Subsidiary company of a '**qualified**' supercritical boiler (or turbine) manufacturer as per (i) above holding minimum 51% equity in the Indian Subsidiary. This equity will be maintained for a minimum lock in period of 7 years from the date of incorporation of the Subsidiary or upto the end of the Contract warrantee period, whichever is later.
- iii. An Indian Joint Venture (JV) company for manufacturing of supercritical boilers (or supercritical steam turbines) in India between an Indian company and a '**qualified**' supercritical boiler manufacturer (or a '**qualified**' supercritical steam turbine manufacturer, as the case may be). The '**qualified**' supercritical boiler (or turbine) manufacturer shall maintain a minimum equity of 26% in the JV company during lock in period of 7 years from the date of incorporation of the JV company or upto the end of the Contract warranty period, whichever is later.
- iv. The Indian partner of JV at (iii) above having experience in execution of large turnkey projects and holding minimum 51 % equity in the JV Company during lock in period of 7 years from the date of incorporation of the **subsidiary/JV** company or upto the end of the Contract warrantee period, whichever is later.
- v. "An Indian manufacturing company who has experience of 500 MW subcritical boiler (or 500 MW subcritical steam turbine, as the case may be) Such a bidder should have a valid ongoing collaboration and technology transfer agreement, including license to manufacture and supply in India, with a '**qualified**' supercritical boiler manufacturer (or a '**qualified**' supercritical steam turbine manufacturer, as the case may be), for the type, size and rating of the boiler / turbine specified, valid minimum up to the end of the warranty period of the contract;  
In such case, bidder and technology provider/collaborator shall submit Deed of Joint Undertaking(s) and be made jointly and severally liable to the Procurer for successful performance of the supercritical boiler or Supercritical Steam Turbine Generator as the case may be."
- vi. An Indian manufacturing company which is a '**qualified**' supercritical boiler manufacturer (or a supercritical turbine manufacturer, as the case may be) and meets the criteria specified in Note 2.

#### Notes:

- 1) 'The bidders participating through any of the four routes {(i) to (iv)} as above shall furnish along with the bid a deed of joint undertaking (DJU) as per format (to be enclosed in the bidding documents) in which all the executing parties (i.e. the bidder, the technology provider, the Indian Manufacturing Company and the Indian promoter of the JV - as applicable) shall be made jointly and severally liable to the procurer for successful performance of the contract."

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2) However, the bidders participating through any of the five routes (i to v) as above shall NOT be required to furnish a deed of joint undertaking (DJU) in case they meet the following criteria:-

*"Eight (8) Nos. supercritical boilers (or turbine generators as the case may be) manufactured/supplied in India by the Indian subsidiary/JV company/Indian manufacturing company are in commercial operation (achieved COD) out of which four (4) such boilers (or turbine generators as the case may be) should be in commercial operation for at least one year and Performance Guarantee Test should have been successfully completed in any two boilers (or turbine generators as the case may be)."*

3) A qualified bidder is the one who meets the qualifying criteria specified by the utility in the bid documents.

  
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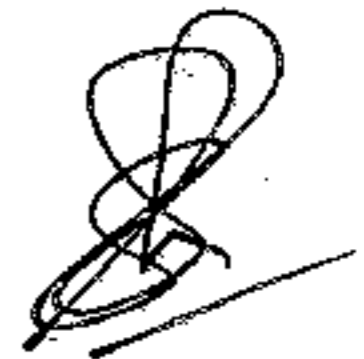
## Annex 2

### Other pre-requisites for participation in the bulk tender

- a. Before submission of the bid, the Subsidiary/JV company as mentioned at (i) to (iv) of Annex 1 should be registered in India under the Companies' Act 1956 for manufacture of supercritical boilers /turbines and should have obtained Certificate for Commencement of Business in India, as applicable.
- b. Promoters / Partners of the Subsidiary / JV Company will be required to employ a minimum subscribed and paid up capital of Rs 500 million in the Subsidiary / JV company prior to submission of bids. In case the bidder is selected for award of contract, a minimum subscribed and paid up capital of Rs 1000 million in the Subsidiary /JV company will have to be ensured by the Promoter /Partners by the date of award.
- c. The bidder shall give firm commitment to indigenize manufacturing of supercritical boiler (or turbine) in India in a phased manner as per Phased Manufacturing Program (PMP) (to be clearly identified and elaborated in the bidding documents) and submit an on demand bank guarantee depending on number of units. **(Annex-3)**
- d. Major part (minimum 75%) of the land required for setting up the manufacturing facility should be in possession with clear title, prior to submission of bid in the name of the Subsidiary/JV company (or in the name of the Indian promoter but pledged/leased to the Subsidiary/JV company).
- e. Special provisions applicable for the indigenous manufacturers who have already been awarded orders for supercritical boilers or turbine generators package in the bulk order for 11x660 MW and 9x800 MW supercritical units approved by the Govt. of India and undertaken by NTPC are given in Annex- 4.
- f. The subsidiary or the JV, as the case may be, should have a valid technology transfer agreement, including license to manufacture and supply in India, with a **qualified** supercritical boiler manufacturer (or a **qualified** supercritical steam turbine manufacturer, as the case may be) for the type, size and rating of the boiler / turbine specified, valid minimum up to the end of the warranty period of the contract. The technology transfer agreement shall necessarily cover transfer of technological know-how in the form of completed design dossier, design softwares, drawings and documentation, quality system manuals and imparting relevant personnel training to the Subsidiary / JV company. Such technology transfer agreement must have provision that the transfer of technology to the Indian manufacturing company shall be completed by the time eighth 660/800 MW supercritical unit is supplied by the bidder.
- g. The Indian bidder as per (v) of Annex 1 should have a technology transfer agreement, including license to manufacture and supply in India, with a **qualified** supercritical boiler manufacturer (or a **qualified** supercritical steam turbine manufacturer, as the case may be) which shall necessarily cover transfer of technological know-how in the form of completed design dossier, design softwares,

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drawings and documentation, quality system manuals and imparting relevant personnel training to the Indian bidder. Such technology transfer agreement must have provision that the transfer of technology to the Indian manufacturing company shall be complete by the time eighth 660/800 MW supercritical unit is supplied by the bidder.

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### Annex 3

#### 'Roadmap' proposed for ensuring absorption of technology and indigenization of Manufacturing

- i. Firm commitment for, first establishing manufacturing base in India and secondly, technology transfer from the technology provider to the Indian manufacturing company, shall be sought from the bidders in the bid in the form of an undertaking supported by a Board Resolution.
- ii. The phased manufacturing program will be clearly specified in the tender with provision of liquidated damages (LD) for failure to meet various milestones of manufacturing. The total LD to be levied on this account will be upto 5% of the total contract value. This 5% amount will be distributed over various major milestones.
- iii. The bidders will be required to submit an on demand Bank Guarantee in case of award as security for default against specified PMP. In case the bidder does not implement the PMP even by the overall completion date, the Procurer will encash the bank guarantee.
- iv. LD for each milestone shall be proportionate to weightage factor assigned to various manufacturing processes.
- v. Total LD for a milestone shall be recovered within 10 weeks delay from the respective milestone target dates. LD to be calculated for each week delay or part thereof.
- vi. Various major milestones identified for the phased manufacturing program, their completion schedule and the weightage factor for the purpose of levying LDs in case of delay in completion are as per Table A (for boilers) and Table B (for STGs).

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6/9



Table A of Annex 3

Sl. No.	Equipment	Indicative Facilities Requirement	To be established latest by (Months from Date of Award)	Weightage factor (%age) for LIQUIDATE D DAMAGES
1.	Pressure Parts (straight water wall & spiral water wall)	<ul style="list-style-type: none"> <li>• Straight tube butt welding facility</li> <li>• Automatic welding facility for panel processing</li> <li>• NDT facilities</li> <li>• Hydro testing</li> <li>• Continuous heat treatment furnace</li> <li>• Gagg/panel bending facility (for straight water wall &amp; spiral water wall tube panels)</li> </ul>	36	35
2	Pressure Parts (economiser, superheater and reheater coils and panels)	<ul style="list-style-type: none"> <li>• System bend facility</li> <li>• Welding facility for coils</li> <li>• NDT facilities</li> <li>• Hydro testing</li> <li>• Continuous heat treatment furnace</li> <li>• Jigs &amp; fixtures for assembly and layout checking facility</li> <li>• Portable equipment for material/grade identification</li> </ul>	42	30
3.	Pressure Parts (headers)	<ul style="list-style-type: none"> <li>• Welding</li> <li>• Machining &amp; drilling</li> <li>• Heat treatment</li> <li>• Hydraulic testing</li> <li>• NDT facilities</li> <li>• Pressing facility for end caps &amp; tees</li> <li>• Material identification facility</li> <li>• Facility for high alloy (P5 and above) continuous welding</li> </ul>	42	20
4.	Separator (shell and dished ends)	<ul style="list-style-type: none"> <li>• Rolling facility / pressing Facility</li> <li>• Machining &amp; drilling</li> <li>• Welding</li> <li>• Heat treatment</li> <li>• Hydraulic testing</li> <li>• NDT facilities</li> <li>• Pressing arrangement for dished ends</li> </ul>	48	15

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Table B of Annex 3

Sl. No.	Equipment	Indicative Facilities Requirement	To be established latest by (Months from Date of Award)	Weightage factor (%age) for LD
1	Turbine Casings and Valves machining	<ul style="list-style-type: none"> <li>• LP outer Casing fabrication</li> <li>• HP / IP / LP Casing Machining &amp; blading</li> <li>• Heat Treatment / Stress Relieving</li> <li>• Turbine valve machining &amp; assembly testing</li> </ul>	36	20
2	Turbine Rotor machining	<ul style="list-style-type: none"> <li>• Rotor machining including grooves &amp; Fir Tree machining.</li> <li>• Rotor assembly and balancing</li> <li>• Turbine assembly</li> </ul>	42	20
3	Rotating blades machining	<ul style="list-style-type: none"> <li>• Rotating Blade machining &amp; finishing</li> </ul>	52	20
4	Generator Core and stator manufacturing	<ul style="list-style-type: none"> <li>• Core stamping, fabrication facility, Heat Treatment / Stress Relieving.</li> <li>• Generator Stator Fabrication and Core building facility</li> <li>• Stator bar manufacturing and heavy machining facility for fabricated items.</li> </ul>	40	20
5	Generator Rotor	<ul style="list-style-type: none"> <li>• Rotor machining including slotting</li> <li>• Rotor assembly and balancing</li> <li>• Exciter manufacturing &amp; testing</li> <li>• Rotor winding facility</li> </ul>	42	15
6	Generator Assembly	<ul style="list-style-type: none"> <li>• Generator assembly and testing</li> </ul>	48	5

22  
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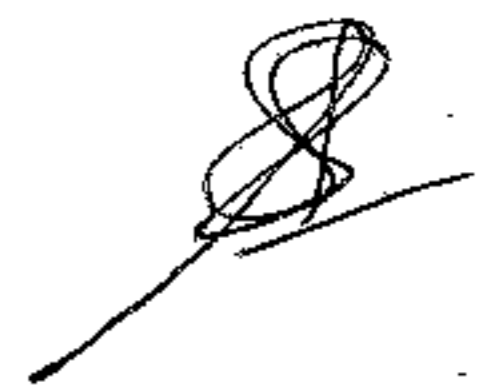
**Special provisions for the indigenous manufacturers awarded orders in the bulk order for supercritical units undertaken by NTPC**

The following Special provisions shall be applicable for the indigenous manufacturers who have already been awarded orders for supercritical boilers or turbine generators package in the bulk order for 1x660 MW and/or 2x800 MW supercritical units approved by the Govt. of India and undertaken by NTPC (or any other order for boilers or turbine generators package for supercritical projects under this Advisory)

1. Such bidders, having already undertaken commitments for PMP in the bulk order (or other order under this Advisory) and submitted bank guarantees for security for default against specified PMP shall not be required to furnish further bank guarantees for security for default against specified PMP as indicated in Annex-3. Rest will be required to submit & follow the requirements.
2. However, after completion of time periods indicated in Table-A or Table-B (as applicable) of Annex-3 from the date of award of first order under the bulk order (or any other order for under this Advisory), such bidders, shall be required to undertake manufacturing activities as indicated in Table-A or Table-B of Annex-3 (as applicable) in the indigenous manufacturing facilities set up under the PMP for the supplies made to the project. The same shall be demonstrated to the entire satisfaction of the owner.

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**To,**

1. Chairman & Managing Director, NTPC Ltd., NTPC Bhawan, Scope Complex, 7, Institutional Area, Lodi Road, New Delhi-110003
2. Chairman, Damodar Valley Corporation, DVC Towers, V.I.P Road, Kolkatta- 700054
3. Chairman and Managing Director, North Eastern Electric Power Corpn. Ltd. Brookland Compound, Lower New Colony Shillong-793003 Meghalaya
4. Chairman cum Managing Director Neyveli Lignite Corporation Ltd. Corporate Office, Block-1 Neyveli 607801, Cuddalore District Tamil Nadu
5. Managing Director, Andhra Pradesh Power Generation Corporation Limited, Vidyut Soudha, Hyderabad – 500049.
6. Managing Director, Assam Power Generation Corporation Limited, Bijulee Bhawan, 4<sup>th</sup> Floor, Paltan Bazar, Guwahati – 781 001
7. Managing Director, Bihar State Power Generation Company Ltd., 1<sup>st</sup> Floor, Vidyut Bhawan, Bailey Road, Patna – 800 021.
8. Managing Director, Chhattisgarh State Power Generation Corporation Limited, Daganiya, Raipur (Chhattisgarh) – 492013
9. Managing Director, Durgapur Projects Ltd., Dr. BC Roy Avenue, District Burdwan, Durgapur -713201, West Bengal
10. Managing Director, Gujarat State Electricity Corporation Ltd., Vidyut Bhawan, Race Course, Vadodara – 390007 Gujarat
11. Managing Director, Gujarat Urja Vikas Nigam Ltd., Sardar Patel Vidyut Bhawan, Race Course, Vadodara 390 007.
12. Managing Director, Haryana Power Generation Corporation. Ltd., Room No. 411, 3<sup>rd</sup> floor, Urja Bhawan, C-7, Sector 6, Panchkula, Haryana
13. Managing Director, Jharkhand Urja Vikas Nigam Limited, Engineering Building HEC, Dhurwa Ranchi 834 004.
14. Managing Director Karnataka Power Corporation Ltd. 82, Shakti Bhavan, Race Course Road, Bangalore - 560001.
15. Managing Director, Maharashtra State Power Generation Corporation Limited, Prakashgad, Plot No. G-9, Bandra (East), MUMBAI-400051
16. Managing Director, Madhya Pradesh Power Generation Co. Ltd. Shakti Bhawan, Vidyutnagar, Rampur, P.O. Jabalpur- 482008.

17. Managing Director, Odisha Power Generation Corporation Ltd. Zone-A, 7<sup>th</sup> Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar-751023, Odisha.
18. Chairman & Managing Director, Punjab State Power Corporation Limited, The Mall, Patiala - 147 001.
19. Chairman & Managing Director Rajasthan Rajya Vidyut Utpadan Nigam Ltd. Vidyut Bhawan, R.C. Dave Marg, Jyoti Nagar Janpath, Jaipur, Rajasthan - 302005.
20. Chairman & Managing Director, Tamil Nadu Generation and Distribution Corporation Limited, 10<sup>th</sup> Floor, NPKRR Maaligai, 144, Anna Salai, Chennai – 600 002
21. Chairman & managing Director, Telangana State Power Generation Corporation Limited, Vidyut Soudha, Khairatabad, Hyderabad – 500082 Fax No. 040- 23499166
22. Managing Director, UP Rajya Vidyut Utpadan Nigam Ltd. 7<sup>th</sup> Floor, Shakti Bhawan, 14, Ashok Marg, Lucknow- 226001.
23. Chairman & Managing Director, West Bengal Power Development Corporation Ltd., BIDYUT UNNAYAN BHABAN, Block–LA, Plot No. 3/C, Sector–III, Salt Lake City, Kolkata– 700098.

**Copy to :**

1. PPS to Secretary (Power), Min of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi-1
2. PPS to Addl. Secretary (Power), Min of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi-1
3. Chairman & Managing Director, Rural Electrification Corporation, Core- 4, SCOPE Complex, 7, Lodhi Road, New Delhi – 110003.
4. Chairman & Managing Director, Power Finance Corporation Ltd., Urjanidhi, 1, Barakhamba Lane, Connaught Place, NEW DELHI-110 001.
5. Principal Secretary Head (Energy Dept.), Government of Andhra Pradesh Secretariat, Hyderabad- 500 022 Andhra Pradesh
6. Additional Chief Secretary (Power), WPT&BC, Assam Secretariat, (Government of Assam), P.O. Assam Sachivalaya, Block-C, Ground Floor, Dispur - 781 006 Assam
7. Principal Secretary (Energy), Government of Bihar, Irrigation Building, Sinchai Bhawan, 1<sup>st</sup> Floor, Patna – 800 015 Bihar
8. Principal Secretary (Energy), Government of Chhattisgarh, Room No. 308, DKS Bhawn, Mantralaya, Raipur, Chhattisgarh

9. Chief Secretary (Power), Government of NCT of Delhi, 8<sup>th</sup> Floor, Players Building, Delhi Secretariat, I.P. Estate, New Delhi – 110 002
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11. Financial Commissioner & Principal Secretary (Power), Government of Haryana Room No. 603, 6<sup>th</sup> floor, New Secretariat Building, Sector-17, Chandigarh – 160 017 Haryana
12. Principal Secretary (Energy) , Government of Jharkhand , Nepal House, Room No. 6, Doranda, Ranchi – 834002 Jharkhand
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15. Secretary (Energy), Government of Maharashtra, Industries Energy & Labour Deptt. , 4<sup>th</sup> floor, Mantralaya, Room no. 401 , Mumbai- 400 032
16. Commissioner-cum- Secretary, Department of Energy, Government of Orissa, Orissa Secretariat, Bhubaneshwar - 751 001 Orissa
17. Secretary (Power), Government of Punjab, Mini Secretariat, Sector- 9, Chandigarh – 160 009 Punjab
18. Secretary (Power), Chief Secretariat, Goubert Avenue, Puducherry – 605 001
19. Secretary (Energy), Government of Rajasthan, Main Building Secretariat, Janpath, Jaipur- 302 001 Rajasthan
20. Principal Secretary (Energy), Energy Department, Government of Tamil Nadu, Secretariat, Chennai - 600 009 Tamil Nadu
21. Principal Secretary, Energy Department, Government of Telangana, Room No. 328A, 2<sup>nd</sup> Floor, D- Block, T.S. Secretariat, Hyderabad – 500022 Telangana
22. Principal Secretary (Energy) , Government of Uttar Pradesh , Lal Bahadur Shastri Bhawan, Annexe, 5<sup>th</sup> Floor, Lucknow - 226 004 Uttar Pradesh
23. Principal Secretary (Energy) , Department of Power & NCES, Govt. of West Bengal, New Secretariat Building, I.K.S. Roy Road, 7<sup>th</sup> floor, Block 'A' , Kolkata-700 001 West Bengal

24. Managing Director, Indraprastha Power Generating Company Ltd., Office of PRO, Himadri, Rajghat Office Complex, New Delhi – 110 002
25. Chairman & Managing Director, Bharat Heavy Electrical Ltd., BHEL House, Asiad Village, Siri Fort, New Delhi – 110 049
26. General Manager, L&T MHI Boilers Private Ltd, 12/4 Delhi Mathura Road, Near Sarai Khwaja Chowk, Faridabad-121003 Haryana
27. General Manager, L&T- MHI Turbine & Generators Pvt. Ltd., 1<sup>st</sup> Floor, Pankaj Building, Chhani Road, Vadodara – 390 024 Gujarat
28. CEO, ALSTOM Bharat Forge Power Limited, IHDP Building, Plot # 7, Sector 127, NOIDA 201301 Uttar Pradesh
29. Managing Director, Toshiba JSW Power Systems Private Limited, S. No. 74-95, Vaikkadu Village, Andarkuppam Chack Post, Manali New Town, Chennai – 600103 Tamil Nadu
30. Vice President, Thermax Babcock & Wilcox Energy Solutions Private Limited, Energy House, D-2 Block, Plot No. 38 & 39, MIDC Area, R.D. Aga Road, Chinchwad, Pune- 411 019.
31. Managing Director, Doosan Power Systems India Pvt. Ltd., 18/2A, Sennerkuppam Bypass, Poonamallee, Chennai – 600 056