

(INVITATION FOR EXPRESSION OF INTEREST)

NTPC Limited

(A Government of India Enterprise)



INVITATION FOR EXPRESSION OF INTEREST (EOI)

FOR

IDENTIFICATION OF DOMESTIC VENDORS

IN THE FIELD OF

**COMPUTATIONAL FLUID DYNAMICS (CFD) FOR THERMAL
POWER PLANTS**

(INVITATION FOR EXPRESSION OF INTEREST)

DETAILED NOTICE INVITING EXPRESSION OF INTEREST (EOI)

EOI No.: NTPC/PEM/EOI/CFD/2025

Date:

NTPC is Inviting an Expression of Interest for “Identification of domestic vendors for COMPUTATIONAL FLUID DYNAMICS (CFD) in thermal power plants”.

1.0 Objective:

- (i) NTPC Ltd., invites Expression of Interest from Companies in India for carrying out the Computational Fluid Dynamics (CFD) for various systems/equipment of thermal power plants. ***This EOI is to identify such interested domestic vendors who have adequate expertise & experience in the field of CFD with exposure in carrying out CFD for the systems/equipment (mentioned at Annexure-A along with minimum eligibility criteria) which are similar to those as in the coal/lignite based thermal power plants.***
- (ii) Based on EOI response, NTPC will prepare a database of such capable domestic vendors and may explore the possibility of utilizing the services for carrying out CFD for the identified Systems / equipment(s) at NTPC.
- (iii) Ascertaining capabilities of vendors in the field of CFD w.r.t. their available infrastructure, resources, expert manpower, technical tie-ups etc. towards successfully carrying out CFD (model creation & its validation, fine-tuning the model, conducting CFD analysis, identification of problem & suggesting corrective measures based on the CFD, as applicable).
- (iv) As per NTPC decision & based on the EOI response, detailed discussions may be done with the applicants towards narrowing down on the ‘technical and commercial’ terms and conditions.

2.0 DOWNLOAD AND TIMELINES FOR SUBMISSION OF EOI

1. Interested APPLICANTS may download the documents of EOI free of cost from www.nptctender.com & <https://eprocurentpc.nic.in>
2. **Last date for EOI submission: 15.11.2025**

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3.0 NTPC encourages submission of EOI in soft copy. For consideration of EOI, Applicants are required to e-mail softcopy, completed in all respect, from its official e-mail ID to below mentioned e-mail IDs. If applicants also wish to submit hard copy of the EOI, the same can be submitted either in person or by registered/ speed post till the last date of submission of EOI to the following address: -

To: Deputy General Manager (PE-Mechanical/SG & Auxiliaries)

Email: vivekbharti@ntpc.co.in

CC to: prsomraj@ntpc.co.in

Project Engineering (Mechanical/SG & Auxiliaries), 3rd Floor

NTPC Limited, SRHQ, NTPC Bhavan, KavadiGuda, Secunderabad-500080

4.0 NTPC reserves the right to reject or accept any or all applications, cancel/withdraw the EOI process without assigning any reason whatsoever and in such case, applicant shall not have any claim arising out of such action. NTPC bears no responsibility or liability of any kind in reference to the EOI.

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SECTION-I

INFORMATION TO APPLICANT

- 1. NTPC Limited is a Govt. of India Enterprise. NTPC group produces around 438 billion units of electricity annually through its cluster of gas, coal, hydro and RE based power stations of more than 83 GW capacity spanning across the country.**

2. INTENT OF THE EXPRESSION OF INTEREST (EOI)

This EOI is to identify interested domestic vendors in India to partner with NTPC for carrying out CFD analysis. The vendor should have adequate technical capabilities & domain expertise, past performance experience, team & resources, with an exposure of carrying out CFD in coal fired power related applications. The minimum eligibility criteria for participation in the tender are mentioned at Annexure-A of this document.

3. THE APPLICANTS SHOULD NOTE THAT:

- a. Language of the responses to EOI or any query/clarifications/ correspondences shall be in English only.
- b. For expression of interest, the Application Form and Annexures given in Section-II shall be duly filled out and sent to NTPC by the applicant in a soft copy.
- c. Applicants should go through Section-I thoroughly before filling and submitting the application form, annexures and schedules in Section-II.
- d. Applicants shall mention the name and contact details of two people, with their complete address, phone number and official email id.
- e. NTPC Ltd. may, at its sole discretion, ask for additional information/ documents and/ or seek clarifications from the applicant(s) after the deadline for submission of response, inter alia, for the purpose of removal of inconsistencies or infirmities in their responses.
- f. Based on EOI response, NTPC will prepare a database of capable domestic vendors for CFD and may explore the possibility of utilizing their services for carrying out CFD for the identified system (s) / equipment(s) at NTPC towards analysis & trouble-shooting purposes.
- g. This EOI is indicative only and non-committal.

4. ENQUIRIES AND CLARIFICATIONS

Any clarifications on the EOI may be sought to the following via email:

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To: Deputy General Manager (PE-Mech/SG & Aux.)
Email: vivekbharti@ntpc.co.in
CC to: prsомaraj@ntpc.co.in

5. CORRIGENDUM

At any time before the last date of submission of EOIs, NTPC may, for any reason, whether at its own initiative or in response to a clarification requested by an applicant, modify the EOI document. The amendment will be posted on the website and will be binding on all the applicants and the applicant will give due consideration to the same, while they submit their EOIs, and would invariably enclose documents/ information, as required, on account of the amendment, as a part of the EOI. NTPC may, at its discretion, extend the deadline for the submission of EOIs.

6. SUBMISSION OF THE RESPONSE TO EOI

The responses to the EOI are to be submitted in soft copy via below e-mail & format:
To: vivekbharti@ntpc.co.in
CC to: prsомaraj@ntpc.co.in

Ref. EOI No. **NTPC/PEM/EOI/CFD/2025** **Dated:**

Submitted to:

To: Deputy General Manager (PE-Mechanical/SG & Auxiliaries)
Email: vivekbharti@ntpc.co.in
CC to: prsомaraj@ntpc.co.in
Project Engineering (Mechanical/SG & Auxiliaries), 3rd Floor
NTPC Limited, SRHQ, NTPC Bhavan, KavadiGuda, Secunderabad-500080

Submitted by:

Name, address & contact no. of the Applicant

All the pages of the response should be duly stamped and signed by the authorized signatory and the same should be reflected in the soft version also.

The responses to the EOI should be submitted within the deadline as mentioned in this document.

7. COSTS AND EXPENSES TOWARDS RESPONSE TO EOI

The applicants shall bear all the costs associated with the complete process including preparation of the response and participation in discussions and finalization &

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execution of the documents related with this EOI, regardless of the conduct or outcome of this process.

8. CONFIDENTIALITY

The applicants undertake to hold in confidence this EOI and any document related or pursuant to this EOI and not to disclose the terms and conditions of the transaction contemplated hereby to third parties, except:

- (a) To their professional advisors.
- (b) To their officers, contractors, employees, agents or representatives, financiers, who need to have access to such information for the proper performance of their activities towards this EOI.
- (c) Disclosures required under applicable Law, without the prior written consent of the other parties of the concerned agreements.

Provided that the applicant(s) agrees and acknowledges that NTPC may at any time, disclose the terms and conditions of this EOI and any document related or pursuant to this EOI to any person, to the extent stipulated under the applicable Law.

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SECTION-II

APPLICATION FORM, ANNEXURES & SCHEDULES

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Annexure-1

FORMAT FOR COVERING LETTER CUM UNDERTAKING

(The covering letter should be on the Letter Head of the Applicant)

Date: _____

Place: _____

To,

Deputy General Manager (PE-Mechanical/SG & Auxiliaries)
Project Engineering (Mechanical/SG & Auxiliaries), 3rd Floor

NTPC Limited, SRHQ, NTPC Bhavan,
Kavadiguda, Secunderabad-500080

Subject: IDENTIFICATION OF DOMESTIC VENDORS FOR CARRYING OUT CFD IN EQUIPMENT (S) / SYSTEMS (S) FOR THERMAL POWER PLANTS.

Ref.: EOI No. NTPC/PEM/EOI/CFD/2025,

dated.....

Dear Sir,

We, the undersigned [insert name of the "Applicant"] having read, examined and understood in detail the (INVITATION FOR EXPRESSION OF INTEREST).

1. We give our unconditional acceptance to the EOI, issued by NTPC, as amended. In token of our acceptance to the EOI, the same have been signed & stamped by us and enclosed to the response. We hereby confirm that the provisions of the EOI shall be binding on us.
2. We have submitted our response strictly as per the provisions and formats of the EOI, without any deviations, conditions and without mentioning any assumptions or notes.
3. We hereby unconditionally and irrevocably agree and accept that the decision made by NTPC LTD. in respect of any matter regarding or arising out of the EOI shall be binding on us. We hereby expressly waive any and all claims in respect of the EOI process. We confirm that there are no litigations or disputes against us, which materially affect our ability to participate or function under the obligations with regard to the EOI.

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4. Details of the contact person are furnished as below:

Name:

Designation:

Address:

Contact numbers:

Email Id:

We are enclosing herewith the entire response containing duly signed formats in electronic format sent via email to vivek_bharti@ntpc.co.in

CC to: prsomraj@ntpc.co.in as per the EOI for consideration.

5. It is confirmed that our response is consistent with all the requirements of submission as stated in the EOI and subsequent communications from NTPC, if any.
6. The information submitted in our response is complete, strictly as per the requirements stipulated in the EOI and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our response.

We remain,

Yours sincerely

(Name, Designation and Signature of Authorized Person)

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Annexure-A

<u>CATEGORY - 1</u>		
Sl. No.	System Description	Minimum Eligibility Criteria
I	Carrying out Computational Fluid Dynamics (CFD) Analysis for Flue gas ducting system of a coal fired thermal power plant	<p>The vendor should have (in-house; utilizing its own resources, including established commercial CFD softwares), carried out the complete CFD analysis for two/multi-phase flue gas flow (flue gas with coal ash particles) for a coal fired power plant (minimum 200 MW size) application with the following scope-</p> <ol style="list-style-type: none"> 1. Analysis of the flow patterns and associated ash drop-out studies & pressure drops, and 2. Suggesting measures to improve flow patterns or troubleshooting. <p>The above project should have been successfully completed with results along with the report submitted and accepted by the client, as on the last date of submission of Expression of Interest (EOI).</p>

<u>CATEGORY - 2</u>		
Sl. No	System Description	Minimum Eligibility Criteria
II	Carrying out Computational Fluid Dynamics (CFD) Analysis in the field of combustion & heat transfer for a coal fired thermal power plant	<p>The vendor should have (in-house; utilizing its own resources, including established commercial CFD softwares), carried out the complete CFD analysis for combustion in the furnace for a coal fired power plant (minimum 200 MW size) application with the following scope-</p> <ol style="list-style-type: none"> 1. Computation & Analysis of the heat generation & heat transfer in the various heat transfer surfaces, 2. Estimation of emissions from the coal combustion 3. Suggesting measures to improve any of the above. <p>The above project should have been successfully completed with results along with the report submitted and accepted by the client, as on the last date of submission of Expression of Interest (EOI).</p>

<u>CATEGORY - 3</u>		
Sl. No	System Description	Minimum Eligibility Criteria
III	Carrying out Computational Fluid Dynamics (CFD) as per the System Description of CATEGORY – 1 or 2 above.	The vendors who meet the corresponding criteria of CATEGORY-1 or 2 in association with any academic or research Institutes/establishments.

Note:

1. Vendor can also include academic or research Institutes/establishments.
2. Vendors to submit all the necessary details to support the above criteria. Also, refer the relevant schedule appended with the EOI for data requirements.

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Annexure-2

GENERAL INFORMATION TO BE SUBMITTED BY APPLICANT FOR CFD STUDY OF IDENTIFIED SYSTEM/ EQUIPMENT(S)

1. Name of Applicant Company:
2. Legal status of the Applicant Company:
3. Brief description of the Company including details of its business groups/subsidiaries/affiliates:
4. Date of Incorporation:
5. Date of Commencement of Business:
6. Shareholding details:
7. Full address including Telephone nos. / Fax nos.:
 - a. Registered Office:
 - b. Head Office:
 - c. Address for communication:
 - d. Contact Details:
 - e. Office Address in India, if any:
8. Existing Infrastructure & computational facilities – locations, capacity, Complete address
9. Documents to be enclosed:

Technical Credentials –

- a) Supporting document for technology ownership/ licensing details for the proposed infrastructure & softwares (like ANSYS Fluent, Rocky DEM, EDEM, Siemens FLO EFD, STAR-CCM+ etc.)
- b) Details of Intellectual Property Rights (IPR) held, patent filed/held, and MOU/agreement signed.

Financial Credentials –

- a) Copies of Audited Financial Statements (Annual Reports) for preceding five (5) financial years as on the date of EOI submission.
 - i. Average Annual Turnover for preceding five (5) financial years.
 - ii. Net worth for the preceding financial year.
 - iii. Paid up Share capital for the preceding financial year.

We confirm that we are interested in carrying out Computational Fluid Dynamics (CFD) analysis of system(s)/ equipment(s) (indicated at Schedule-5) similar to successfully completed projects & credentials.

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10. We agree that the conductance of Computational Fluid Dynamics (CFD) analysis shall be considered successful based on the acceptance of the results and the report along with suggestive measures for the given system (s) / equipment (s). We also agree that successful completion of the project to establish the performance shall be as stipulated by NTPC for respective system (s) / equipment(s).
11. We confirm that the conductance of the Computational Fluid Dynamics (CFD) analysis of system/equipment will follow specification requirements and Codes & Standards as specified/ applicable.

(Sign & Company Seal)
Authorized signatory

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Annexure-3

**ESSENTIAL INFORMATION TO BE SUBMITTED BY APPLICANT FOR SYSTEM/ EQUIPMENT
MENTIONED AT ANNEXURE-A**

Essential Information:

S.No.	Information/ Details Head	Details	Additional Data
1	Application Category (Category-1/ 2/ 3 as per Annexure-A)		
2	CFD Infrastructure owned by Applicant		
	a) Hardware Resources (such as CPU Cores, RAM, GPU etc)		
	b) Software Tools & Licenses (Name, License validity)		
3	Location of CFD infrastructure facility		
4	Technical Expertise		
	a) CFD Engineers (with Qualification)		
	b) CFD Experience (in years) of Engineers at 4(a) above		
5	Data Security (Policy docs, compliance certificates etc)		
6	Areas/ Industrial Sectors of successfully completed CFD projects/ assignments		
7	CFD Analysis/ projects in coal fired thermal power plants (>=200MW units)		
	i) No. of projects completed related to flue gas flow (fill relevant schedules for details)		
	ii) No. of studies conducted in compliance with ICAC standard		
	iii) Turbulence models used		
	iv) Whether any completed projects in coal fired thermal power plants involved particle tracking of flue gas ash particles using discrete element method (DEM) or other specific method/ software (also fill details of such project in relevant schedules)		
	v) No. of studies conducted & analysis done for Flue gas wrt-		
	a) Mass-flow distribution		
	b) Ash particle trajectory		
	vi) Average delivery time for such projects of coal fired thermal power plants (in months)		
7	Collaborations (domestic/ international) for support (if any)		
	i) Name of Firm/ reputed academic Institute		
	ii) Validity of collaboration(s) – (project specific or otherwise, specify)		
	iii) Specify type of support sought by applicant through collaboration(s)		

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SCHEDULES

**(SCHEDULES ARE TO BE FILLED UP AND SUBMITTED IN MS WORD
FORMAT. ALL CREDENTIALS/SUPPORTING DOCUMENTS RELEVANT TO THE
SCHEDULES ARE TO BE SUBMITTED PREFERABLY IN SINGLE PDF FILE)**

(All the documents are to be submitted on Company's Letter Head)

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(To be submitted on Company's Letter Head)

Schedule – 1

(Company Profile and Organization Structure)

Name of the Company:

Registered Address:

Contact Person & Designation:

Postal address for communication:

Telephone No.:

Fax No.:

E-mail address:

Document regarding Organization Structure and Ownership are enclosed.

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(To be submitted on Company's Letter Head)

Schedule – 2

(TURNOVER OF THE COMPANY IN THE LAST FIVE FINANCIAL YEARS AND NETWORTH OF THE COMPANY)

A) We confirm that annual turnover of M/s..... **[Applicant]** for the preceding five financial years is indicated below:-

Sl. No.	Financial Year	Turnover amount (In Million Rs.)
1.	24-25	
2.	23-24	
3.	22-23	
4.	21-22	
5.	20-21	
6.	19-20	

B) We confirm that Networth of M/s..... **[Applicant]** for the preceding five financial years is indicated below:-

Sl. No.	Financial Year	Networth (In Million Rs.)
1.	24-25	
2.	23-24	
3.	22-23	
4.	21-22	
5.	20-21	
6.	19-20	

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We have enclosed Balance Sheets and Profit & Loss account duly certified by Chartered Accountant

A) We hereby confirm that net worth of M/s----- (Applicant) as on the last day of the preceding financial year on the date of publication of the EOI is given below:-

Sl. No.	Description	As on last day of the preceding financial year
1.	Paid-up Share Capital	
2.	Net worth	
3.	% age of Net worth to paid-up Share Capital	

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Schedule – 3

Relevant experience in the conductance of the Computational Fluid Dynamics (CFD) analysis

S.N.	Name of the project	Plant MW	Location	Date of award of project	Completion Report / Acceptance date of the project	Scope of the project	Attach Client Certificates
						As per following scope description sheet	
						--do--	
						--do--	

I. Scope Description Sheet (Fill in case of Category-1, 3 as per Annexure-A)

Name of the project [at least one project]

S.N.	Scope	Whether Yes/ No	Attach documents in support of the claim
1.	Carried out the complete CFD analysis:		
a.	In-House		
b.	Utilizing Its Own Resources		
c.	Commercial CFD Softwares used (along with software names)		
d.	Two/multi-phase		
e.	Flue Gas Flow		
f.	For A Coal Fired Power Plant		
g.	Minimum 200 MW Size		
2	Scope of the CFD project		

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a.	Analysis of the Flow Patterns		
b.	Associated Ash Drop-Out Studies		
c.	Pressure Drops		
3	Suggesting measures – 1. To improve flow patterns or 2. Troubleshooting. (choose 1 or 2 or both, as applicable)		
4	Status of the CFD project		
a.	Whether successfully completed		
b.	Whether the results submitted along with the report and accepted by the client		
c.	Whether the results & the report accepted by the client		
d.	Date with month & year when the report was submitted		
e.	Date with month & year when the report was accepted.		
5	Meeting Category-1 criteria in association with any academic or research Institutes/ establishment		
5a	Scope of the academic or research institutes/ establishments wrt utilization of following services/ infrastructure: i) Hardware ii) Software tools iii) Experts CFD manpower & type iv) Technical advice/ assistance & its nature v) Any other		
	Contact detail of customer	Name: Address: Email: Phone Number: Website address:	

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II. Scope Description Sheet (Fill in case of Category-2, 3 as per Annexure-A)

Name of the project at least one project]

S.N.	Scope	Whether Yes/ No	Attach documents in support of the claim
1.	Carried out the complete CFD analysis:		
a.	In-House		
b.	Utilizing Its Own Resources		
c.	Commercial CFD Softwares used		
d.	Combustion in the furnace		
e.	For A Coal Fired Power Plant		
f.	Minimum 200 MW Size		
2	Scope of the CFD project		
a.	Computation & Analysis of Heat Generation and Heat Transfer in various heat transfer surfaces		
b.	Estimation of emissions from the coal combustion		
c.	Suggestive measures to improve 2(a) & (b) above.		
3	Status of the CFD project		
a.	Whether successfully completed		
b.	Whether the results submitted along with the report and accepted by the client		
c.	Whether the results & the report accepted by the client		
d.	Date with month & year when the report was submitted		
e.	Date with month & year when the report was accepted.		
4.	Meeting Category-2 criteria in association with any academic or research Institutes/ establishment		
4a	Scope of the academic or research institutes/ establishments wrt utilization of following services/ infrastructure: i) Hardware ii) Software tools iii) Experts CFD manpower & type iv) Technical advice/ assistance & its nature v) Any other		

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	Contact detail of customer	Name: Address: Email: Phone Number: Website address:	
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III. Client certificates or any other certificates

All relevant certificates or documents shall be submitted in pdf. file format.

Note: Applicant to fill the above applicable table(s) with confirmations against each point.

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(To be submitted on Company's Letter Head)

Schedule – 4

1. System description and Plant layout

Sl. N o.	Name of Power Plant with location	No. of Units with MW Capacity in which study was conducted	Objective of CFD study (Documentary evidence attached)	Ash % in the coal	Section for which the CFD study was conducted (Attach layout)	Major Recommendations of CFD study	No. of years since the report was accepted	Effect of Implementation of recommendations, if available.	Remarks

2. Details of Coal Properties: Ultimate / Proximate Analysis

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Schedule - 5

Budgetary offer for carrying up CFD analysis for flue gas flow from Steam Generator goose-neck area to Chimney inlet (complete flow path)

Brief Scope:

Carrying out the complete CFD analysis (Steady & Transient) for two/multi-phase flue gas flow for a 800 MW coal fired power plant (at 40%, 55%, 80%, 100% TMCR operating conditions) with the following scope-

1. Analysis of the flow patterns and associated ash drop-out studies & pressure drops, and
2. Suggesting measures to improve flow patterns or troubleshooting.

Note: Indicative typical layout drawing of coal fired thermal power plant attached for reference.

SI No	Description of Item/ System	Total Cost (in Indian currency)
1.	Development of 3D CFD model/ geometry/ meshing	
2.	Conducting study & report preparation (at various operating conditions, including validations)	
3.	Visit Charges to the power plant (1 no.) & Engineering office (2 nos.)	
4.	Manpower Charges	
5.	Overheads	
6.	Sub-Total	
6a.	GST	
7.	Grand Total	

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Time schedule for carrying up CFD analysis for flue gas path as per scope mentioned in schedule-5

S. No.	Activities/Milestone	Period in Weeks	
		Start	Finish
1.	Input Data Receiving		
2.	3D Model Development (Geometry, Meshing etc)		
3.	Conducting Study & Validation (for all given operating conditions)		
4.	Report Preparation, Iterations & Submission		
5.	Visit to the power plant (1 No.)		
6.	Visit to the Engineering office (2 nos.)		
7.	Any other activity		
8.	Acceptance of the report		
9.	Project Closure		

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(To be submitted on Company's Letter Head)

Schedule – 7

Additional Information relevant to the work / assignment to be enclosed:

1. Technical Support during performance measurement post implementation.
2. Technical tie-ups, if required or willing with any research/academic Indian Institute of repute for resource utilization.
3. Particle motion study related experiences
4. Details of any existing tie-ups
5. Suggestions for enhancing participation
6. Willingness in carrying out CFD analysis for NTPC projects
7. Any other information

SG & Aux. (Typical Sketch)

