

NTPC Limited

(A Government of India Enterprise)



Invites

Expression of Interest

(EoI)

From

Any Indian/Global Company/their Consortium/Affiliates/Representatives

For

**Setting up CO₂ Capture, H₂ Generation & Conversion to Methanol
(composite facility) in Aggregator Mode at NTPC power plants in India**

DOCUMENTS OF EoI

This EOI document comprises of the following sections:

- (i) Section I : EoI Information
- (ii) Section II : Introduction
- (iii) Section III : Instructions to the Applicants
- (iv) Section IV : Consideration of Response
- (v) Section V : Application Form and Annexures

Section - I

Eoi Information

(GLOBAL INVITATION FOR EXPRESSION OF INTEREST)

DETAILED NOTICE INVITING EXPRESSION OF INTEREST (EoI)

EoI No.: NTPC/BD/EoI-02/2021-22

Date: 28.01.2021

NTPC is Inviting Expression of Interest from Indian/Global Company/their Consortium/Affiliates/Representatives for setting up CO₂ Capture, H₂ Generation & Conversion to Methanol (composite facility) in Aggregator Mode at various NTPC Power Plants in India

1. NTPC Limited (A Government of India Enterprise) intends to set-up CO₂ Capture, H₂ Generation & Conversion to Methanol (composite facility) in aggregator mode at various NTPC power plants in India. In this regard, NTPC Limited invites Expression of Interest (EoI) from any Indian/Global Company/their Consortium/Affiliates/Representatives (**herein after called APPLICANT**). The participation in EoI may also be done through consortium; however, the consortium shall have a lead partner.

Note: Creation of Methanol Manufacturing facility by CO₂ capturing within power plant premises is an initiative by NTPC. This EoI is to assess the commercialization prospects of the initiative. After identifying the APPLICANTS through EoI who are interested in setting up Methanol Manufacturing facility by CO₂ Hydrogenation, Request for Proposals (RfP) for undertaking project(s) in some of the NTPC plants shall be invited for setting up the facilities and scalable model for further additional requirements.

2. **DOWNLOAD AND TIME LINES FOR SUBMISSION OF EoI**

- a. Interested APPLICANTS may download the documents of EoI free of cost from www.ntpctender.com & <https://eprocurrentpc.nic.in>
- b. **Last date for submission of EoI** : **30.03.2021**
- c. **Last date for queries/ seeking clarifications** : **20.03.2021**
- d. **Date of opening of EoI response** : **31.03.2021**
- e. **Response Validity** : **12 months from Last Date of EoI Submission**

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3. For consideration of EoI, APPLICANTS are required to e-mail softcopy of EoI, completed in all respect, through e-mail as well as send the hard copy of the same, which can be submitted either in person or by registered/ speed post till last date of submission of EoI to the following address: -

To: amitttal@ntpc.co.in

CC to: koushiksaha@ntpc.co.in

Additional General Manager (Business Development)
NTPC Limited
Room No. - 305
EoC Noida sector - 24, Noida

4. 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.

Section - II

Introduction

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1. INTRODUCTION

- i. NTPC Limited (www.ntpc.co.in) is a leading power generation company of India. It has been ranked No#2 Independent Power Producer (IPP) in the world as per Platts (2019). The Company is listed in Indian stock exchange with a market capitalization of INR 833.12 billion.
- ii. NTPC Limited produces around 300 Billion units of electricity annually through its cluster of gas, coal, hydro and RE based power stations of more than 63GW capacity spanning across the country. Further NTPC plans target capacity of 130 GW by 2032.
- iii. NTPC Ltd. has revenues from operations INR 977 billion (12.97 billion USD) through its paid-up equity of INR 98.94 billion (1.3 billion USD), NTPC group achieved a net profit of INR 101.12 billion (1.4 billion USD) in the financial year 2020 and has been consistently paying dividends to its shareholders for the last 26 years.
- iv. NTPC Ltd. in keeping focus on decarbonisation of the Indian energy sector and India's commitment to COP 21 for reducing GHG emissions and wants to set up facility to capture CO₂ from flue gas discharged from power station chimneys and convert captured CO₂ to Methanol. NTPC's power plants are located in various states across the country and its power stations can be used to develop "Methanol Economy", an initiative by NITI Aayog of India.
- v. Following facilities are available at NTPC plants:
 - a. 24x7 reliable Electricity
 - b. Availability of adequate water supply.
 - c. Accessibility through road and rail network as NTPC power plants are well connected to the hinterland.
 - d. Availability of skilled labour.
 - e. Infrastructural facilities like internet lease lines/office/township/Medical facilities/ local market etc.
 - f. Provision of basic material/chemical testing facilities.

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2. INTENT OF THE EXPRESSION OF INTEREST (EoI)

- i. NTPC Limited intends to set-up CO₂ Capture, H₂ Generation & Conversion to Methanol (composite facility) in aggregator mode on BOO (Build, Own & Operate) basis at various NTPC power plants in India. CO₂ captured from flue gases and Hydrogen generated using surplus power during off-peak hours/low schedule or renewable sources shall be used for methanol production.
- ii. The initiative will help reduce oil import dependence of the country by using methanol as an alternate substitute of oil.
- iii. There are many technologies in various stages of development world over. The responses shall be evaluated with regards to technology, financial viability and best possible option for commercialization.
- iv. Based on the responses in the EoI, the project shall be implemented at one/multiple NTPC power plants based on their feasibility.
- v. The key roles and responsibilities of the stakeholders under the projects shall include but not limited to the following:

a. NTPC's Role:

- Facilitate in setting up of composite facility at identified NTPC power plants.
- Providing flue gas, land, electricity and water to the facilities within plant premises.
- Arranging all required statutory clearances regarding setting up of facility.
- Marketing/selling of products.

b. Applicant's Role:

- Build, Own & Operation of plant for production of Methanol from CO₂ Hydrogenation by capturing CO₂ from flue gas and Hydrogen Generation.
- Sourcing of all raw materials except flue gas.
- Arranging own project finances.
- Delivery of products.
- Maintaining Environmental Clearance and Consent to Operate including treatment/control measures for effluents/air quality.
- Arrange own security and manage labour related issues.

The Applicants may express their interest in respect of their offerings along with other inputs as indicated in relevant Annexures/formats.

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- vi. Typical flue gas parameters of NTPC plants is enclosed at **Annexure 1**

The response(s) received in the EoI will be utilized by NTPC for:

- a. Identification of suitable technology, financial viability and best possible option for commercialization.

AND/OR

- b. Formulation of specifications for various systems/stages required for execution of demonstration plant/commercial project(s).

AND/OR

- c. Shortlisting of parties for forthcoming Request for Proposals (RFP) / short term tenders by NTPC for undertaking demonstration plant/commercial project(s).

AND/OR

- d. Identification of NTPC stations for undertaking demonstration plant/commercial project(s) based on requirements for electricity, land, water and other infrastructure facilities.

Section - III

Instructions to the Applicants

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1. The Applicants should note that:

- a. Language of the responses to Eol or any query/ clarifications/ correspondences shall be in English only.
- b. For expression of interest, Application Form and Annexures given in Section-V shall be duly filled and sent to NTPC by the APPLICANT in hard as well as soft copy.
- c. Applicants should go through Section-I and Section-II thoroughly before filling and submitting the application form and annexures in Section-V.
- d. Applicants shall mention the name and contact details of two persons, with complete address, phone number and 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.

2. Enquiries and clarifications

Any clarifications on the Eol may be sought to the following via e-mail:

To: amittal@ntpc.co.in

CC to: koushiksaha@ntpc.co.in

3. Corrigendum

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

4. Preparation of the response to Eol

The application of Eol consists of the following:

- (a) Annexure 2, 3 & 4 of Section-V

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5. Validity of the responses

The Applicant shall submit the responses which shall remain valid up to twelve (12) months after the response Deadline ("Response Validity"). NTPC reserve the right to reject any response, which does not meet the aforementioned validity requirement.

NTPC may solicit the Applicant's consent for an extension of the period of validity of the response. The request and the response in this regard shall be in writing. In the event any Applicant refuses to extend its response validity as requested by NTPC, NTPC shall terminate processing of such Applicant's responses. An Applicant accepting NTPC request for validity extension shall not be permitted to modify its response.

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: amittal@ntpc.co.in
CC to: koushiksaha@ntpc.co.in

Ref. EoI No.

Dated

Envelope: Original / Copy # _____

Due date of Opening: _____

Submitted to:

Name, designation & address of the concerned officer of NTPC

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 in whose favour the Power of Attorney is issued.

The responses to the EoI should be submitted within the Deadline at the address provided in the Section-I of this EoI.

7. Opening of responses to the EoI

The responses to the EoI shall be opened as per the time schedule 1500 HRS at date as mentioned in Section-I and will be communicated to the Applicants via e-mail.

In the event of any of above dates falling on a day which is not a working day or which is a public holiday, the responses shall be opened on the next working day at the same venue and time.

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8. Costs and expenses towards response to Eol

The Applicants shall be responsible for all the costs associated with the preparation of the response and participation in discussions and finalization & execution of the documents related with this Eol, NTPC shall not be responsible in any way for such costs, regardless of the conduct or outcome of this short-listing/ selection process.

9. Confidentiality

The Applicants undertake to hold in confidence this Eol and any document related or pursuant to this Eol 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;
- (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 Eol and any document related or pursuant to this Eol to any person, to the extent stipulated under the applicable Law.

10. Disclaimer

- (a) This Expression of Interest (Eol) has been prepared by NTPC Ltd. for response from Indian/Global Company/their Consortium/Affiliates/Representatives for setting up CO₂ Capture, H₂ Generation & Conversion to Methanol (composite facility) in aggregator mode at BOO basis at various NTPC power plants in India.
- (b) Creation of manufacturing facility within NTPC plant premises shall be subject to requisite approvals from State and Central Government. NTPC shall process these approvals, after receiving the desired response for Eol.
- (c) In submitting an expressed Eol in response to the Eol, the Applicants certify that it understands, accepts and agrees to the disclaimers on this page. Nothing contained in any other provision of the Eol nor any statements made orally or in writing by any person or party shall have the effect of negating or superseding any of the disclaimers set forth herewith.

Section-IV

Consideration of Response

RESPONSIVENESS/EVALUATION METHODOLOGY

1. Responsiveness check

The responses submitted by Applicants shall be scrutinized to establish interest in setting up CO₂ Capture, H₂ Generation & Conversion to Methanol (composite facility) in aggregator mode at various NTPC power plants in India. Responses shall be deemed non responsive for following reasons:

- a. Responses that are incomplete, i.e. not accompanied by any of the applicable formats inter alia covering letter, power of attorney, applicable undertakings, provided in more details at annexure in Section-V;
- b. Responses not signed by authorized signatory and / or stamped in the manner indicated in this EoI;
- c. Material inconsistencies in the information/ documents submitted by the Applicant
- d. An Applicant submitting more than one response to this EoI either itself or through an affiliate or subsidiary company;
- e. Response validity being less than that required as per Clause 5 of section-III of this EoI;
- f. Response being conditional in nature;
- g. Response not received by the response Deadline;
- h. Response having Conflict of Interest;
- i. Applicant delaying in submission of additional information or clarifications sought by NTPC, as applicable;

All bids that shall meet the responsive check requirements set out above in this section of the EoI document shall be considered as responsive. In case of non-submission of relevant details as above, the responses may be considered as “**Non-responsive**”, at the sole discretion of NTPC and will not be considered further.

Section-V

Application Form & Annexures

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Annexure-1

TYPICAL FLUE GAS PARAMETERS OF 500 MW PLANTS

Sl. No.	Chemical Parameters	Unit of measurement	Before FGD	After FGD
1.	Carbon Dioxide (CO ₂)	%	13.5	11.8
2.	Oxygen (O ₂)	%	6.0	8.2
3.	Nitric Oxide (NO)	mg/Nm ³	218	226
4.	Nitrogen Dioxide	mg/Nm ³	22	23
5.	Sulphur Dioxide	mg/Nm ³	1373	134
6.	Carbon Monoxide	mg/Nm ³	30	27
7.	Moisture	%v/v	9	8
8.	Ammonia	mg/Nm ³	170	163
9.	Hydrogen Cyanide (HCN)	mg/Nm ³	<0.01	<0.01
10.	Mercury (Hg)	mg/Nm ³	<0.1	<0.1
11.	Particulate Matter	mg/Nm ³	268	160
12.	Acid Mist	mg/Nm ³	BDL	BDL
13.	Sulphur Trioxide (SO ₃)	mg/Nm ³	16	15

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Annexure-2

FORMAT FOR COVERING LETTER CUM UNDERTAKING

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

Date : _____

Place : _____

To,
.....

Sub.: (INVITATION FOR EXPRESSION OF INTEREST)

Ref.: Eol No. _____, dated _____ (the “Eol”)

Dear Sir,

We, the undersigned [insert name of the “Applicant”] having read, examined and understood in detail the **(INVITATION FOR EXPRESSION OF INTEREST)**. We confirm that neither we nor any of our Parent Company/ Affiliate/ Ultimate Parent Company has submitted response other than this response directly or indirectly in response to the aforesaid Eol.

1. We give our unconditional acceptance to the Eol, issued by NTPC, as amended. In token of our acceptance to the Eol, the same have been signed & stamped by us and enclosed to the response. We hereby confirm that the provisions of the Eol shall be binding on us.
2. We have submitted our response strictly as per provisions and formats of the Eol, 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 in respect of any matter regarding or arising out of the Eol shall be binding on us. We hereby expressly waive any and all claims in respect of Eol 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 Eol.

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

Name :

Designation:

Address:

Contact numbers:

email id:

5. We are enclosing herewith the entire response containing duly signed formats in electronic format sent via email to: amittal@ntpc.co.in as per the EoI for consideration.

6. 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.

7. 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.

8. We confirm that all the terms and conditions of our response are valid for acceptance for a period of twelve (12) months from the response Deadline.

9. We confirm that we have not taken any deviation so as to be deemed “**Non-Responsive**” as stipulated in Section-IV of this EoI.

10. We understand that you are not bound to accept any response you receive.

We remain,

Yours sincerely

(Name, Designation and Signature of Authorized Person in whose name Power of Attorney is issued)

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Annexure-3

INFORMATION TO BE SUBMITTED BY APPLICANT

(Note: Documents in support of meeting the respective requirement shall be submitted by the Applicant.)

1. Name of the Company/Lead Partner of Consortium:
2. Legal status of the Company/Consortium:
3. Brief description of the Company/Consortium including details of its business groups/subsidiaries/ affiliates:
4. Existing Manufacturing facilities – Locations, Capacity
5. Date of Incorporation:
6. Date of Commencement of Business:
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. Documents to be enclosed:

Technical Credentials – Relevant Product/System catalogues, Experience /Reference List, Copies of Customer Certificates, Engineering strengths, collaborations/tie-ups with manufacturer (if applicable), quality accreditations, etc.

Financial Credentials – Copies of Audited Financial statements (Annual Reports) for last 3 years, Credit Rating, Market share (Domestic/International), Segmental Revenue in the applied category (ies).

9. Any other documents considered relevant.

(Sign & Company Seal)
Authorized signatory

Annexure-4

INFORMATION TO BE SUBMITTED BY APPLICANT

1. Type of manufacturing facility(ies) proposed to be set-up and technology
2. Details of technology for CO₂ separation and capture i.e., Adsorption, Absorption, Cryogenic Distillation, Membrane, any other technology
3. Details of technology for H₂ generation i.e., Alkaline electrolysis, Polymer Electrolyte Membranes Electrolysis, Solid Oxide Electrolysis, any other technology
4. Details of technology for Methanol Synthesis
5. Capacity of manufacturing facility(ies) proposed to be set-up
6. Energy intensity, efficiency, Inputs required for each stage
7. Land area requirement for proposed manufacturing facility(ies)
8. Estimated power requirement
9. Estimated water requirement
10. Man power requirement
11. IT infrastructure requirements
12. Types of effluents (air/water borne) and treatment before exhaust/discharge: Level(s) of residual pollutants vis-a-vis maximum allowable limits in India/Country of Origin
13. Estimated investment for proposed manufacturing facility(ies)
14. Cost wise Percentage (%) of imported components and input raw material/machinery proposed to be imported and likely source countries
15. Estimated cost of finished products
16. Other value-added products along with their estimated cost
17. Timelines for starting the execution on proposed manufacturing facility(ies)
18. Time for completion of manufacturing facility(ies)