

(INVITATION FOR EXPRESSION OF INTEREST)

NTPC Limited

(A Government of India Enterprise)

Invites

EXPRESSION OF INTEREST (EOI)

For

**Cooperation in Indigenization and Establishment of Large Capacity
Pressurized Water Reactor (PWR) based Nuclear Power Plants in India
on concept to commissioning basis, subject to approval from the
Government of India**

DOCUMENTS OF EOI

This EOI document comprises the following sections:

- (i) Section I : EOI Information
- (ii) Section II : Introduction
- (iii) Section III : Information to the Applicants
- (iv) Section IV : Application Form and Annexures

(INVITATION FOR EXPRESSION OF INTEREST)

Section – I

EOI Information

DETAILED NOTICE INVITING EXPRESSION OF INTEREST (EOI)

EOI No.: NTPC/NC/EOI/PWR/2024-25

Date: 26.03.2025

NTPC is Inviting Expression of Interest (Eoi) from interested and capable entities for cooperation in indigenizing Pressurized Water Reactor (PWR) technology and establishing large-capacity (1000 MW & above) PWR based Nuclear Power Plants (NPPs) in India on concept to commissioning basis, subject to approval from Government of India (GoI).

1. NTPC Limited intends to explore the vendor base who are willing for cooperation in indigenizing Pressurized Water Reactor (PWR) technology and establishing large-capacity (1000 MW & above) PWR based Nuclear Power Plants (NPPs) in India on concept to commissioning basis with a target capacity of 15 GW \pm 10%. In this regard, NTPC invites Expression of Interest (EOI) from any Global Company. (Hereinafter called APPLICANT).

Note: This EOI is to assess prospects of vendor base for indigenizing Pressurized Water Reactor (PWR) technology for establishing large-capacity (1000 MW & above) Nuclear Power Plants (NPPs) in India. Based on the APPLICANTs EOI who are interested in fulfilling all requirements, global tender shall be floated subject to approval by GoI.

2. DOWNLOAD AND TIMELINES FOR SUBMISSION OF EOI

- a. Interested APPLICANTs may download the documents of EOI free of cost from www.ntpctender.com & <https://eprocurementpc.nic.in>

- b. **Last date for submission of EOI: 45 Days from date of publication of EOI**

3. NTPC encourages submission of EOI in soft copy. For consideration of EOI, APPLICANTs are required to e-mail softcopy of EOI, completed in all respect, through e- mail mentioned hereunder. 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: Arnada Prasad Samal, General Manager (Nuclear Cell)

Email: apsamal@ntpc.co.in

(INVITATION FOR EXPRESSION OF INTEREST)

Address: Nuclear Cell, NTPC Limited

Western Region – I HQ, 2nd Floor, Samruddhi Venture Park, MIDC Marol,
Andheri (East), Mumbai - 400093

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

1. INTRODUCTION

- i. NTPC Limited is a Public Sector Enterprise under the administrative control of Ministry of Power, Government of India established in 1975, aims to be the world's largest and best power major. It is India's largest power utility with an installed capacity of 77,461 MW (including JVs). It is a power major with presence in the entire value chain of the Power Generation business.
- ii. To strengthen its core business, the corporation has diversified into the fields of Consultancy, Power Trading, Training of Power Professionals, Rural Electrification, Ash Utilization, Coal Mining, Renewable Energy & Hydro. NTPC has gained vast experience in Project Execution, Project Management, Mine planning and development, handling overseas contracts and projects.
- iii. NTPC, with a vision to generate power, which is reliable, affordable, and accessible with aspirations to work towards Net Zero, has decided on a Mission to further diversify into Nuclear Power. This initiative aligns with the Government of India's vision of 100 GW of nuclear power by 2047 and to enhance self-reliance in the nuclear energy sector.
- iv. Based on response in EOI, NTPC intends to know the vendor base for cooperation in indigenizing Pressurized Water Reactor (PWR) technology and establishing large-capacity (1000 MW & above) PWR based Nuclear Power Plants (NPPs) in India on a concept to commissioning basis.

2. INTENT OF THE EXPRESSION OF INTEREST (EOI)

- i. India is committed to expanding its nuclear energy capacity to achieve the Government of India's ambitious target of 100 GW of nuclear power generation by 2047. This initiative is an essential step toward ensuring energy security, reducing dependency on fossil fuels, and addressing the rising energy demand in a sustainable manner. Furthermore, India has pledged to achieve net-zero carbon emissions by 2070, and nuclear energy plays a crucial role in decarbonizing the

(INVITATION FOR EXPRESSION OF INTEREST)

power sector by providing a stable and low-carbon source of electricity.

- ii. Recognizing the critical need for technological advancement and domestic capability development in the nuclear sector, NTPC aims to indigenize Pressurized Water Reactor (PWR) technology. This move is aligned with the national objective of self-reliance in nuclear technology and localization of the nuclear power plant supply chain. By fostering collaboration with global nuclear vendors, NTPC seeks to establish a robust domestic ecosystem for PWR based nuclear power generation in India.
- iii. The response(s) received in the EOI will be utilized by NTPC for the identification of Vendor base and in preparing requirements for Global Tender subject to approval from Gol.
- iv. The Applicants may express their interest in responding to this EOI with other inputs as indicated in relevant Annexures/formats.

Section – III

Information to the Applicants

1. Who can apply:

- a. Any vendor, from a country which shares a land border with India, will be eligible to participate only when and if the vendor is registered with the Competent Authority. The Competent Authority for registration is, the Registration Committee under Department for Promotion of Industry and Internal Trade ('DPIIT').
- b. Should possess ownership & Intellectual Property Rights (IPR) rights of the PWR technology proposed for indigenization.
- c. The PWR technology proposed for indigenization must have received approval and licensed for operation from the Nuclear Regulator in the vendor's country of origin.
- d. Any legal formalities that need to be done in the country of the applicant for the export of nuclear technology / material shall be done by the applicant at its own cost.
- e. The offered technology should be either already licensed in India or it should be licensable in India as per requirements of Atomic Energy Regulatory Board (AERB) of India. Any modification required in the technology to meet AERB requirement shall be done by the participant at its own cost.
- f. Proven experience in the design, manufacturing, and commissioning of at least one PWR technology based large capacity nuclear power plant which is in

(INVITATION FOR EXPRESSION OF INTEREST)

operation for a minimum of 1 year in any country.

- g. Possession of a No Objection Certificate (NOC) from concerned authorities in the vendor's country of origin, permitting their participation in this EoI.
- h. Should have financial capability and technical competence to support indigenization efforts and project execution.

2. Expected Scope of Cooperation subject to approval from the Government of India

The broad framework for cooperation is as follows:

- a. **Transfer of Technology:** A commitment to the gradual transfer of key technologies of proposed PWR based nuclear reactors to India, fostering long-term capability building.
- b. **Technology Indigenization:** Willing to cooperate in indigenization & adaption of proposed PWR technology to align with requirements of Atomic Energy Regulatory Board (AERB) of India and Country / site-specific modifications.
- c. **Execution of Entire Nuclear Power Project on concept to commissioning basis:** Participation in the end-to-end execution of large-capacity (1000 MW & above) PWR based nuclear power projects, including engineering, procurement, and construction.
- d. **Implementation of Phased Manufacturing Program (PMP):** Should adhere to a structured and mandatory phased manufacturing program to facilitate the progressive localization of nuclear reactor components and systems in India.
- e. **Progressive Indigenization of Manufacturing:** Minimum 60% Indigenization of components for the first reactor unit and progressively increase to more than 95% for the last reactor unit, ensuring a steady transition to self-sufficiency in nuclear technology. This can either be done through an Indian Subsidiary / JV company of the applicant or through tie up with Indian Companies.
- f. **Manufacturing and Supply Chain Development:** Establishment of domestic manufacturing capabilities for components required for large-capacity (1000 MW & above) PWR based NPPs in India, ensuring a robust and sustainable supply chain through collaboration with one or more Indian manufacturers.
- g. **Lifetime Fuel Supply Commitment:** A commitment to providing a lifetime supply of nuclear fuel with a sovereign guarantee within the framework of Indian laws and regulatory policies.
- h. **Creation of Fuel Fabrication Facility:** Establishment of a fuel fabrication facility under International Atomic Energy Agency (IAEA) safeguards to ensure a reliable and compliant nuclear fuel supply.
- i. **Capability Development of NTPC Executives:** Implementation of a structured capability-building program for NTPC executives, with a specific focus on training and skill development in O&M for long-term expertise development.

(INVITATION FOR EXPRESSION OF INTEREST)

- j. **Operation and Maintenance:** Undertaking the operation and maintenance of the nuclear power plant for an initial period of five years post-commissioning, ensuring smooth and efficient performance till NTPC personnel are able to confidently take over.

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-IV shall be duly filled out and sent to NTPC by the APPLICANT in soft copy.
- c. Applicants should go through Section-I and Section-II thoroughly before filling and submitting the application form and annexures in Section-IV.
- d. Applicants shall mention the name and contact details of two persons, with complete address, phone number and email id.
- e. NTPC 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.

4. Enquiries and clarifications

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

To: Arnada Prasad Samal

Email: apsamal@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 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. Preparation of the response to EOI

The application of EOI should consist of the following with a brief on how the applicant wants to indigenize the technology keeping the overall objective of this

(INVITATION FOR EXPRESSION OF INTEREST)

EOI in view:

(a) Annexure 1, 2, 3 & 4 of Section-IV

7. Submission of the response to EOI

The responses to the EOI are to be submitted in soft copy to below e-mail ID in the following format:

To: apsamal@ntpc.co.in

Ref. Eoi No: NTPC/NC/EOI/PWR/2024-25

Dated: 26.03.2025

Submitted to:

To: Arnada Prasad Samal, General Manager (Nuclear Cell)

Email: apsamal@ntpc.co.in

Address: Nuclear Cell, NTPC Limited

Western Region – I HQ, 2nd Floor, Samruddhi Venture Park, MIDC Marol, Andheri (East), Mumbai - 400093

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 favor the authorization is issued.

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

8. Opening of responses to the EOI

The responses to the EOI shall be opened at 15:00 HRS on the last date for submission of Eoi as mentioned in this document. 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.

9. Costs and expenses towards response to EOI

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 EOI, NTPC shall not be responsible in any way for such costs, regardless of the conduct or outcome of this short-listing/ selection process.

(INVITATION FOR EXPRESSION OF INTEREST)

10. 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.

11. Disclaimer

- (a) NTPC reserves the right to make any changes on the conditions of EOI or completely cancel this EOI at any point without assigning any reason thereof.
- (b) Applicability of this EOI is subject to approval from Government of India in line with prevailing laws of India.
- (c) In submitting an expressed EOI in response to the EOI, the Applicants certify that they understand, accept and agree to the disclaimers on this page. Nothing contained in any other provision of the EOI 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.

(INVITATION FOR EXPRESSION OF INTEREST)

Section-IV

Application Form & Annexures

Annexure-1

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. NTPC/NC/EOI/PWR/2024-25, dated _____ (the "EOI")

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 EOI.

1. We give our unconditional acceptance to the EOI, issued by NTPC.
2. We are not from a country sharing land border with India.
3. 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 EOI.
4. Details of the contact person are furnished as below:

Name:

Designation:

Address:

Contact numbers:

(INVITATION FOR EXPRESSION OF INTEREST)

email id:

5. We are enclosing herewith the entire response containing duly signed formats in electronic format sent via email to: apsamal@ntpc.co.in as per the EOI for consideration.
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.
7. Additionally, we confirm that we have obtained the necessary permission from the Government of _____, where our registered office is located, for our participation in this EOI.
8. We do hereby undertake and confirm that we fully understand and acknowledge that no claim by us, as the applicant, shall be admissible against NTPC on account of this Expression of Interest (EOI).
9. Furthermore, we acknowledge and accept that NTPC reserves the right to alter, modify, or cancel the EOI process entirely, at its sole discretion, without assigning any reason thereof.

We remain,

Yours sincerely

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

(INVITATION FOR EXPRESSION OF INTEREST)

Annexure-2

INFORMATION TO BE SUBMITTED BY APPLICANT

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

A. General Information about Company:

Name of Company	
Details of registration (in full)	
Brief description of the Company including details of its business groups/subsidiaries/ affiliates	
Legal Status of Company / Type of Organization (Public/Private/Government)	
Equity Ownership Pattern	
Parent/Leader company (if any) and its involvement in the project	
Major subsidiaries and locations of other offices	
Geographical Coverage	
Certifications & Accreditations	
Website	
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:	
Has your company ever been blacklisted or terminated for default by any Indian government entity [If yes, provide details in an attachment to this form]	

B. Financial Information about Company:

Year	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Annual Turnover (INR)					
Net Worth (INR)					
Net Profit / Loss (% of Annual Turnover)					
Paid up Share Capital (INR)					
Credit Rating (Moody's)					
Credit Rating (S&P)					

Any other documents considered relevant.

(Sign & Company Seal)
Authorized signatory

(INVITATION FOR EXPRESSION OF INTEREST)

Annexure-3

INFORMATION TO BE SUBMITTED BY APPLICANT

Essential Information:

A. Past Experience

1. Brief description of company's principal activities with emphasis on scope of work (Use separate sheets as required)
2. Nuclear Power Projects based on proposed PWR Technology executed up to 2024, with project details like, Project Name, Cost, Timeline, completion date. Project Completion certificate to be submitted for each of the above.
3. Details of collaborations/joint ventures in the nuclear sector.
4. Details of capability in manufacturing PWR components.

B. Brief Technical Information on proposed PWR technology

More on offered technology:

1. Regulatory Certificates / clearances received from Nuclear Regulator of the country of origin of Vendor for the proposed PWR Technology.
2. Brief details of proposed PWR technology as tabulated below:

Parameter	Specification (Provide Details)
Power Rating of Each Unit (MW)	
Type of Fuel	
Fuel Enrichment Level (%)	
Steam Temperature (°C)	
Steam Pressure (MPa)	
Safety Features (Active)	
Safety Features (Passive)	
Period of Operation till refueling (days)	
Refueling Outage Duration (days)	
Core Damage Frequency	
Large Early Release Frequency	
Load Following Capability	

Credentials – Relevant catalogues, Experience /Reference List, Copies of Customer Certificates, collaborations/tie-ups with designers and manufacturers (as applicable), Supporting document for technology ownership (as applicable), details of manufacturing facility including location and country name, quality accreditations, etc.

Additional details as deemed fit may be provided in separate sheets.

(INVITATION FOR EXPRESSION OF INTEREST)

Annexure-4

INFORMATION TO BE SUBMITTED BY APPLICANT

Essential Information:

A. Proposed plan of Cooperation:

(please submit a write up on the following aspects)

- Proposed role and scope of participation in the NTPC initiative.
- Plan for Indigenizing proposed PWR Technology to comply with AERB requirements.
- Proposed approach plan for technology transfer and supply chain development to meet the objective of EOI.
- Any other relevant details supporting the proposal.

B. A valid No Objection Certificate (NOC) from their respective national authorities for participating in this Eoi.

Checklist

Please indicate the areas where your organization is interested in collaborating (Check all applicable) and provide details:

A. Transfer of Technology

- Areas of expertise in reactor technology: _____
- Experience in PWR technology: _____
- Proposed approach to technology transfer: _____

B. Technology Indigenisation

- Capabilities in aligning with AERB requirements: _____
- Plans for adapting technology to Indian regulatory and site-specific needs:

C. Execution of Entire Nuclear Power Project

- Experience in EPC (Engineering, Procurement, Construction) contracts:

- Role in previous nuclear projects: _____
- Resources and infrastructure available: _____

D. Implementation of Phased Manufacturing Program (PMP)

- Willingness to comply with structured PMP: Yes No

(INVITATION FOR EXPRESSION OF INTEREST)

- Strategy for gradual localisation: _____

E. Progressive Indigenisation of Manufacturing

- Initial capacity for manufacturing nuclear components (in %): _____
- Plan for increasing indigenization: _____

F. Manufacturing and Supply Chain Development

- Existing manufacturing capabilities for critical reactor components: _____
- Potential partnerships with Indian suppliers: _____

G. Lifetime Fuel Supply Commitment

- Capacity to ensure uninterrupted fuel supply: _____
- Compliance with Indian regulatory framework: _____

H. Creation of Fuel Fabrication Facility

- Experience in establishing fuel fabrication plants: _____
- Ability to meet IAEA safeguards: _____

I. Operation and Maintenance including Capability Development

- Experience in operating nuclear power plants: _____
- Commitment period for initial O&M support: _____
- Training and skill development programs for local personnel: _____