

# NTPC Limited

(A Government of India Enterprise)



Invites

Expression of Interest

(EoI)

From

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

For

**Setting up 1000 MWh of Grid-scale Battery Energy Storage System (BESS)**

**at NTPC Power Plants in India**

## DOCUMENTS OF EoI

This EOI document comprises 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-05/2021-22

Date: 26.06.2021

**NTPC is Inviting an Expression of Interest from Indian/Global Company/ their Consortium/ Affiliates/Representatives for setting up 1000 MWh of Grid-scale Battery Energy Storage System at single/split across multiple NTPC Power Plants in India**

1. NTPC Limited (A Government of India Enterprise) intends to set up 1000 MWh of Grid-scale Battery Energy Storage System at single/split across multiple NTPC power plants in India. In this regard, NTPC Limited invites Expression of Interest (EoI) from any Indian/Global Company/their Consortium/Affiliates/Representatives (hereinafter called **APPLICANT**).

***Note: This EOI is to assess commercialization prospects of Setting up Grid-scale Battery Energy Storage System. The BESS shall be set up within NTPC power plant premises. After identifying the APPLICANTs through EoI who are interested in setting up 1000 MWh Grid-scale Battery Energy Storage System, Request for Proposals (RfP) for undertaking project(s) at single/split across multiple NTPC plants shall be invited separately for setting up the facilities and scalable model for further additional requirements.***

**2. DOWNLOAD AND TIMELINES FOR SUBMISSION OF EoI**

- a. Interested APPLICANTs may download the documents of EoI free of cost from [www.ntpctender.com](http://www.ntpctender.com) & <https://eprocurementpc.nic.in>
- b. Last date for submission of EoI : 10.08.2021
- c. Last date for queries/ seeking clarifications : 26.07.2021
- d. Date of opening of EoI response : 11.08.2021
- e. Response Validity : 12 months from Last Date of EoI Submission

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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:** [akchaturvedi01@ntpc.co.in](mailto:akchaturvedi01@ntpc.co.in)

**CC to:** [koushiksaha@ntpc.co.in](mailto:koushiksaha@ntpc.co.in)

Additional General Manager (Business Development)  
NTPC Limited  
Room No. - 23  
EoC, Annexe Building, 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**

## (GLOBAL INVITATION FOR EXPRESSION OF INTEREST)

### 1. **INTRODUCTION**

- i. NTPC Limited ([www.ntpc.co.in](http://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 65 GW capacity spanning across the country. Further NTPC plans target capacity of 130 GW including RE target capacity of 60 GW by 2032.
- iii. NTPC Ltd. has revenues from operations INR 992.07 billion (13.36 billion USD) through its paid-up equity of INR 96.97 billion (1.31 billion USD), NTPC group achieved a net profit of INR 137.69 billion (1.85 billion USD) in the financial year 2021 and has been consistently paying dividends to its shareholders for the last 27 years.
- iv. Grid-scale battery energy storage systems (BESS) have been the subject of intensive research in the recent times in India owing primarily to the emerging challenge of integrating large amounts of variable renewable energy (VRE) in the power grid. CEA's Optimal Generation mix report outlines the need for 27 GW of grid-scale battery energy storage systems by 2030 with four hours storage. Ministry of Power (Government of India), vide order dated 21.06.2021, has announced waiver of Inter State Transmission Charges on energy supplied to/from BESS projects commissioned before June 2025, if at least 70% of charging requirement is met through renewable sources. Amongst the most promising business models of BESS that's likely to emerge in the future is its integration with existing large power plants, which are required to be flexibly operated to provide either firm, schedulable power or reliable and balancing support to the grid.
- v. While the role of BESS is critical in long-range resource planning under high variable renewable energy scenarios, its role in providing fast responding, high quality energy services for ancillary operations is already proven across large power systems in the world. A grid-scale BESS, if deployed by NTPC, will be available for participation in both primary and secondary frequency response services and enhance the availability and quality of reserves in the grid.
- vi. NTPC Ltd., in keeping focus on evolving power market, wants to install 1000 MWh of Grid-scale Battery Energy Storage System at single/split across multiple NTPC power plants across the country.

**2. INTENT OF THE EXPRESSION OF INTEREST (EoI)**

- i. NTPC's conventional fleet will increasingly be required to operate flexibly to support the grid, as VRE penetration invariably increases in India's power system under its policy driven initiative to increase its share of installed capacity from non-fossil fuel power sources by 2030 and beyond.
- ii. It is thus appropriate to pursue Grid-scale Battery Energy Storage System at an appropriately chosen power station of NTPC in due consultation with POSOCO and the Ministry of Power to provide the Indian grid with a flexible storage system, test the ability of NTPC to integrate BESS into its future operational regime and simultaneously extend the facility for ancillary operations by POSOCO to enhance the reliability of the grid.
- iii. BESS can be used for multiple applications at a time. So, by targeting all the desired applications together, a strong case for BESS utilization can be made. Grid-scale BESS may be employed along with thermal/RE generators for the following purposes:
  - a. Storing surplus energy during low demand periods and supply stored energy during peak demand hours.
  - b. Supplement thermal generation in meeting the statutory ramp up and ramp down requirements
  - c. Ancillary services as per Grid requirement which includes Secondary Frequency Control (Generators on Automatic Generation Control) and/or Tertiary Frequency Control (Generators through operator dispatch) – Tertiary Reserve Ancillary Services.
  - d. Minimize Unscheduled Interchange (UI) and Optimizing UI returns

BESS may be deployed at different locations for one or more of the above applications.

- iv. NTPC considers that multiple synergic applications of BESS will be cost effective. It will not only help to expand the arenas of derived benefits, but also justify high investments costs. The purpose of this EOI is to explore the specific grid services through BESS, based on the experience of the APPLICANT to the EOI, which could be technically feasible and result into profitable revenue streams.

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- v. To ensure that this process runs smoothly, designing optimal investment plans beforehand is essential. NTPC through this EOI is interested in investigating different business models for development of BESS for different applications with thermal generator and RE power generator. This includes, but not limited to, the following:
  - A. Design, Build & Operate
  - B. Co-investment partnership
- vi. This Expression of Interest is for NTPC to engage with prospective companies who have supplied or have comparable potential options available for BESS that can confirm the viability of its capital and operational costs over the lifetime with several selected services, operational profiles and dispatch schedules. The EOI respondents may also suggest steps for finding an optimal location for BESS placement based on their experience.
- vii. For BESS, there are many technologies in various stages of development world over. Participants of the EOI could be energy storage manufacturer or an integrator that will help NTPC in venturing into implementation of BESS for grid services. APPLICANTs in this Eoi should meet any of the following criteria:
  - a. The battery energy storage manufacturer should have manufactured and supplied batteries for grid interactive BESS of cumulative installed capacity of 5 MW/5 MWh or higher.
  - b. The Integrator should be the agency/entity, which has carried out the integration work(s) of grid interactive BESS of cumulative installed capacity of 5 MW/5 MWh.

NTPC is looking for **complete end to end solution from eligible APPLICANTs** for BESS facility including storage plant, power conversion system, balance of plant, battery management system including software solution for optimized operation of BESS. APPLICANT meeting any of the above criteria has to tie-up with others for complete solution.

- viii. Based on the responses in the Eoi and further discussions with interested parties, NTPC may go for installations of BESS at single/split across multiple NTPC power plants / may not proceed with any project at this stage.

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- ix. The response(s) received in the EoI will be utilized by NTPC for:
- a. Identification of various technologies for applications mentioned in 2(iii), financial viability and best possible option of BESS system for commercial returns.

AND/OR

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

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

## **Section - III**

### **Instructions to the Applicants**

## (GLOBAL INVITATION FOR EXPRESSION OF INTEREST)

### 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 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: [akchaturvedi01@ntpc.co.in](mailto:akchaturvedi01@ntpc.co.in)

CC to: [koushiksaha@ntpc.co.in](mailto: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 Eol

The responses to the Eol are to be submitted in soft copy via below e-mail format

To: [akchaturvedi01@ntpc.co.in](mailto:akchaturvedi01@ntpc.co.in)

CC to: [koushiksaha@ntpc.co.in](mailto:koushiksaha@ntpc.co.in)

**Ref. Eol 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 Eol should be submitted within the Deadline at the address provided in the Section-I of this Eol.

### 7. Opening of responses to the Eol

The responses to the Eol 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 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.

### 9. 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;
- (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.

### 10. Disclaimer

- (a) This Expression of Interest (EoI) has been prepared by NTPC Ltd. for response from Indian/Global Company/their Consortium/Affiliates/Representatives for setting up 1000 MWh of Grid-scale Battery Energy Storage System (BESS) at single/split across multiple NTPC power plants in India.
- (b) Installation of BESS facility within NTPC plant premises shall be subject to requisite approvals from State and Central Statutory/Regulatory Agencies. NTPC shall process these approvals, after receiving the desired response for EoI.
- (c) In submitting an expressed EoI in response to the EoI, the Applicants certify that it understands, accepts and agrees 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.

## **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 Grid-scale Battery Energy Storage System (BESS) at single/split across multiple 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 accompanied by Essential Information as prescribed in Annexure 4 in Section-V.
- c. Responses not signed by authorized signatory and / or stamped in the manner indicated in this EoI;
- d. Material inconsistencies in the information/ documents submitted by the Applicant
- e. An Applicant submitting more than one response to this EoI either itself or through an affiliate or subsidiary company;
- f. Response validity being less than that required as per Clause 5 of section-III of this EoI;
- g. Response being conditional in nature;
- h. Response not received by the response Deadline;
- i. Response having Conflict of Interest;
- j. 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**

**List of NTPC Thermal Power Plants in India**

<b>Sl. No.</b>	<b>NTPC Power Station</b>	<b>Location (State)</b>
1.	Singrauli	Madhya Pradesh
2.	Rihand	Uttar Pradesh
3.	Unchahar	Uttar Pradesh
4.	Tanda	Uttar Pradesh
5.	Dadri coal	Uttar Pradesh
6.	Korba	Chhattisgarh
7.	Vindhyachal	Madhya Pradesh
8.	Sipat	Chhattisgarh
9.	Lara	Chhattisgarh
10.	Gadarwara	Madhya Pradesh
11.	Khargone	Madhya Pradesh
12.	Darlipali	Odisha
13.	Mauda	Maharashtra
14.	Kudgi	Karnataka
15.	Solapur	Maharashtra
16.	Ramagundam	Telangana
17.	Simhadri	Andhra Pradesh
18.	Farakka	West Bengal
19.	Kahalgaon	Bihar
20.	Barh	Bihar
21.	Talcher Kaniha	Odisha
22.	Bongaigaon	Assam
23.	Barauni	Bihar

**List of NTPC Renewable Power Projects in India**

<b>Sl. No.</b>	<b>NTPC Power Station</b>	<b>Location (State)</b>
1.	Dadri Solar PV	Uttar Pradesh
2.	Auraiya Solar	Uttar Pradesh
3.	Andaman & Nicobar Solar PV	Andaman & Nicobar
4.	Ramagundam Solar PV	Telangana
5.	Talcher Solar PV	Odisha
6.	Faridabad Solar PV	Haryana
7.	Unchahar Solar PV	Uttar Pradesh
8.	Rajgarh Solar PV	Madhya Pradesh
9.	Singrauli Solar PV	Uttar Pradesh
10.	Anantapur Solar PV	Andhra Pradesh
11.	Bhadla Solar PV	Rajasthan
12.	Mandsaur Solar PV	Madhya Pradesh
13.	Bilhaur Solar PV	Uttar Pradesh
14.	Rojmal Wind	Gujrat

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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: [akchaturvedi01@ntpc.co.in](mailto:akchaturvedi01@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)

**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.

9. Any other documents considered relevant.

(Sign & Company Seal)  
Authorized signatory

**Annexure-4**

**INFORMATION TO BE SUBMITTED BY APPLICANT**

**Essential Information:**

1. Whether any BESS has been supplied?
2. Key characteristics of the BESS supplied.
  - a. Rated Power capacity of BESS supplied.
  - b. Energy capacity of the BESS supplied.
  - c. Useful life of BESS (duty cycles).
  - d. Round-Trip Efficiency of BESS over useful life.
  - e. Depth - of - Discharge of BESS over useful life.
  - f. Self-discharge.
  - g. Response Time of BESS.
  - h. Annual loss of capacity
  - i. Auxiliary Energy Consumption of the system.
3. Application for BESS wherever supplied.
4. Analysis and assessment of business model of such applications.
5. Technology of BESS proposed to be set-up.
6. Land area requirement for proposed facility(ies).
7. Battery Safety features.
8. Timelines for execution of proposed BESS facility(ies).
9. Strategy for battery waste management.

**Desirable Information:**

1. Estimated investment for proposed BESS facility(ies).
2. Cost wise percentage (%) of imported components proposed to be imported and likely source countries.
3. Regulatory /policy requirement for application wherever supplied.