

ABRIDGED INVITATION FOR BIDS

NTPC GREEN ENERGY LIMITED

(A SUBSIDIARY OF NTPC LIMITED)

CONTRACTS SERVICES

INVITATION FOR BIDS (IFB)

FOR

**EPC PACKAGE FOR DEVELOPMENT OF 3300 MWH BESS AT NTPC REL KHAVDA
SOLAR PLANT**

(DOMESTIC COMPETITIVE BIDDING)

IFB No.: NGEL-CS-5779-004(BESS1R)-9

Date: 23.09.2026

NTPC GREEN ENERGY LIMITED (NGEL) invites online bids from eligible bidders on Single Stage Two Envelope (i.e. Envelope-I: Techno-Commercial Bid and Envelope-II: Price Bid) bidding process followed by reverse auction for **“EPC PACKAGE FOR DEVELOPMENT OF 3300 MWH BESS AT NTPC REL KHAVDA SOLAR PLANT”**

For the detailed IFB and bidding documents please visit at <https://www.bharat-electronictender.com> or www.ntpctender.com or www.ntpc.co.in or www.ngel.in from 01.10.2026 or may contact DGM (CS) / AGM (CS), NTPC Green Energy Limited, 4th Floor, NETRA Building E-3, Ecotech-II, Udyog Vihar, Greater Noida, Distt. Gautam Budh Nagar, (UP), INDIA, Pin-201306 on Mob No. +91-9424140768/ Tel No. +91-120-2356601 or at e-mail: omprakash08@ntpc.co.in / abhishekkumar02@ntpc.co.in

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Website: www.ngel.in

Brief Scope of Work for EPC Package for Development of 3300 MWh BESS at NTPC REL Khavda Solar Project

SCOPE OF WORK: The scope of work covers the following activities and services in respect of all the equipment & works specified and covered under the specifications and read in conjunction with “Scope of Supply & services” specified in Technical Specifications

1.01 Project is divided into multiple blocks with location as follows:

Blocks	Location	BESS Capacity
Block-1	PSS-1, NTPC REL Khavda, Gujarat	300 MW /900 MWh
Block-2	PSS-1, NTPC REL Khavda, Gujarat	300 MW /900 MWh
Block-3	PSS-1, NTPC REL Khavda, Gujarat	300 MW /900 MWh
Block-4	PSS-1, NTPC REL Khavda, Gujarat	200 MW /600 MWh

Note:

Each BESS Block shall be connected at 33 kV Level of a designated Solar Plant.

“BESS capacity” mentioned in table above, is the deliverable AC capacity to be demonstrated by Bidder at the time of COD at the Point of Interconnection (POI).

Bidder needs to consider the aux consumption of the BESS Plant/ BESS Block(s), transmission line and power transformer losses along with other losses during discharge to arrive at the Discharge capacity of the BESS Plant(s)/ BESS Block(s).

- 1.02 Design, Engineering, Supply, Packing and Forwarding, Transportation, Unloading, Storage, Installation and Commissioning of grid connected Battery Energy Storage System (**BESS**) on turnkey basis.
- 1.03 Unloading at respective sites, Supervision of Erection, Testing, Commissioning, Integration of above equipment with BoS Infra to commission a complete BESS system integrated with Solar plant(s) and grid shall be included in scope of bidder.
- 1.04 **Design life of BESS system including that of battery shall be of 25 years (with degraded capacity as per bidder’s proposal considering daily single cycle operation) from the date of commissioning.**
- 1.05 Batteries offered shall be rated for minimum 25 years of operation with single cycle per Day application.
- 1.06 The BESS Supplier shall take into consideration following loss parameters beyond the termination point and up to POI while sizing the nameplate capacity of the BESS for each Block:

Head	Loss to be considered in sizing
Power Trafo Losses	1%
Transmission Line Losses	0.25%

- 1.07 Taking capacity degradation into consideration, Bidder will guarantee minimum dispatchable capacity at POI as per the table below, starting with 100 % of rated dispatchable capacity at CoD.

Year	For Each Block: Minimum Dispatchable Energy at the end of Year (As a % of Capacity at the Beginning of Life/COD i.e % of awarded Capacity)
1	98%
2	96%
3	94%

4	92%
5	90%
6	88%
7	86%
8	84%
9	82%
10	80%
11	78%
12	76%
13	74%
14	72%
15	70%

- 1.08 **Comprehensive O&M including associated warranty, annual maintenance contract (Service Level Agreement) to maintain performance of BESS for period of 15 years shall be included in scope of bidder.**
- 1.09 **Minimum monthly Round Trip Efficiency (RTE) shall be 80% including auxiliary consumption (Measured at Termination point/Point of Coupling)**
- 1.10 **Annual system availability to be maintained is 98%.** Detailed Availability requirements and other details will be mentioned in detailed specifications.
- 1.11 BESS capacity offered shall be suitable for meeting deliverable capacity at POI including reactive power compensation.
- 1.12 Grid compliance study for complete project (designated Solar + BESS + Power Evacuation) is included in scope of bidder. However, inputs for conducting grid power study to be provided by owner for Solar & Power evacuation package.
- 1.13 Power quality compliance for entire designated Solar + BESS + Power Evacuation system up to grid interconnection point (POI) at ISTS switchyard is included in scope of bidder.
- 1.14 Aux supply system for the BESS Plant(s) from 33 kV termination point/Point of Coupling shall be in the scope of Bidder. The aux supply required for Battery Container at site up to final commissioning shall be also in the scope of Bidder. Bidder to ensure the delivery of items at site and other works related to BESS plant(s) accordingly.
- 1.15 The Bidder shall design the system in such a way that during discharging and stand-by hours, the aux consumption of the BESS Plant is to be met with stored energy. Auxiliary system and sizing of BESS Plant shall be done accordingly. Accordingly, the Bidder should design its BESS capacity for the entire contract period.

- 1.16 Required bus extension work and any other associated work for integrating BESS plant into the 33 kV Switchgear of each designated Solar Plant shall be in the scope of Bidder.
- 1.17 During operation of the BESS Plant(s), in case of grid failure, emergency supply requirement for BESS Plant(s) shall be in the scope of Bidder.
- 1.18 DSM Charges applicable corresponding to the metering and scheduling of BESS Plant(s) and attributable to Bidder shall be paid by bidder, during the Contract duration.
- 1.19 Bidder shall carry out Engineering to execution works of civil, erection, installation and commissioning work of all the supplied equipment and equipment system(s).
- 1.20 Bidder shall provide engineering drawings, data, process calculations, test procedures, Equipment layout, Drawings/Data sheets of bought out items, Performance & Guarantee Test procedure etc for review and approval of Owner.
- 1.21 Provide documentation for design and expected performance through design calculations, software, design drawings, equipment drawings, and modifications to the existing drawings.
- 1.22 Complete manufacturing including conducting all type, routine and acceptance tests, Pre-assembly, (if any), testing, pre-commissioning and commissioning and putting into satisfactory operation all the equipment including successful completion of initial operation.
- 1.23 Scope shall include EMS configuration to operate BESS at various modes as per Grid requirement mentioned in specification and integrated operation with Solar plant(s) and Plant(s) Scheduling as per Grid/RLDC requirement during O&M. EMS Scope shall include the BESS to be operated as per charging from Grid and with future provision to be integrated with Solar Plant(s). Further details shall be shared during detailed specification.
- 1.24 Develop detailed start up and site acceptance plan. Reliability and Functional/Performance guarantee tests after successful completion of commissioning.
- 1.25 Provide training for the operators, engineers, technicians, and maintenance personnel.
- 1.26 Special tools and tackles, if any, required for maintenance of the plant(s)
- 1.27 BESS should be in line with latest guidelines of CEA, CERC and LDC. BMS, EMS, Fire Safety of the BESS should comply with the latest IS or/and IEC or/and IEEE standards and guidelines issued by statutory authorities. Fire safety of the Battery and container should be in line with latest Indian or/and international standards.
- 1.28 All equipment, materials and services, whether explicitly stated or otherwise and that are necessary for the satisfactory operation of the BESS system and all material & services required for its integration with owner's system at 33 KV, as described in the specification, shall be deemed to be included in the scope of work.
- 1.29 Further the bidder has to obtain site-specific data from the owner in preparation for developing installation and implementation plans. All other details will be provided in the IFB.

1.30 The Owner shall provide at the BESS project site an earmarked, demarcated and duly licensed Private Bonded Warehouse under Section 58 of the Customs Act, 1962, developed and maintained in accordance with applicable provisions of Section 58/65, MOOWR, 2019 and other applicable Customs laws, rules and regulations.

The said bonded warehouse shall be made available to the successful Bidder/Contractor as the designated shipping/receipt location for eligible imported BESS raw materials/component, enabling the Bidder/Contractor to utilise the provisions of MOOWR, to the extent permissible under applicable laws.

The Bidder/Contractor shall be responsible for all documentation, customs compliance and other obligations associated with its imported materials and utilisation of the MOOWR facility. The Bidder shall factor the applicable benefits of the Owner-provided bonded warehouse/MOOWR facility into its quoted price, as specified in the Bidding Documents.

Detailed provisions in regard of scope of work and technical features/specification of equipment/ systems/ services, contained in the Bidding Document shall be final and binding.

TERMINAL POINT/ Point of Coupling (POC)

The terminal point/ Point of Coupling (POC) under the scope of this assignment shall be up to commissioning and Integration with Owner's 33 KV pooling switchgear. Space for installation and commissioning of extension panel in owner's pooling switchgear shall be provided, but required extension and modification, if any, to successfully integrate the BESS Block/plant with designated Solar Plant shall be in the scope of Bidder.

SALIENT TECHNICAL FEATURES OF EPC PACKAGE FOR DEVELOPMENT OF 1100 MW/3300 MWh ISTS CONNECTED BESS AT NTPC REL Khavda SOLAR PLANT

“Salient Technical Features of the equipment/ systems/ services covered in IFB No. **NGEL-CS-5779-004(BESS1R)-9** are mentioned below. These Salient Technical Features are mentioned only to facilitate the prospective bidders to prima-facie understand the requirements under the tender and shall not in any way limit or alter the scope of work and technical features/specification of equipment/ systems/ services covered in the Bidding Documents. Detailed provisions in regard of scope of work and technical features/specification of equipment/ systems/ services, contained in the Bidding Document shall be final and binding.”

Name of the Project	EPC PACKAGE FOR DEVELOPMENT OF 1100 MW/3300 MWh ISTS CONNECTED BESS AT NTPC REL Khavda SOLAR PLANT		
Project capacity	Complete 1,100 MW / 3,300 MWh BESS capacity to be developed as a single EPC package , comprising four independently evaluable blocks as under:		
	Block	BESS Capacity	Energy Capacity
	Block-1	300 MW	900 MWh
	Block-2	300 MW	900 MWh
	Block-3	300 MW	900 MWh
	Block-4	200 MW	600 MWh
	Total	1,100 MW	3,300 MWh
BESS Service Life	Design life of BESS (with degraded capacity) shall be of 25 years for daily single cycle operation. Comprehensive O&M for 15 years to meet performance parameters as mentioned in Technical specifications is included in the scope of this project.		
Degradation	As mentioned in Technical Specifications		

- Design, Engineering, Supply, Packing and Forwarding, Transportation, Unloading, Storage, Installation and Commissioning of grid connected Battery Energy Storage System (BESS) on turnkey basis.
- Unloading at respective site, Erection, Testing, Commissioning, Integration of above equipment with existing 33 kV System to commission a complete BESS integrated with owner's Solar plant and grid shall be included in scope of bidder.
- Comprehensive Operation and Maintenance (O&M) works of BESS system for period of 15 years from the date of commissioning shall be included in scope of bidder.
- The BESS shall comprise of BESS containers with Battery Racks, Battery Management System (BMS), Energy Management System (EMS) and SCADA, Power Conversion System (PCS), Inverter Duty Transformers , Protection system, Power Evacuation system upto owner's 33 KV pooling switchgear, Cables, Communication System, HT & LT System, Auxiliary power system, Monitoring & Control system, Fire Fighting, remote control and monitoring, any other associated materials and services necessary for trouble free operation and maintenance of the BESS.