



सत्यमेव जयते

File No: J-13012/127/2007-IA.II(T)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division



Dated 15/04/2024



To,
Shri Brijendra Agrawal, Additional General Manager
NTPC LIMITED
NTPC Limited, NTPC Bhawan, SCOPE Complex, Institutional Area, Lodhi Road, New Delhi – 110003
, NEW DELHI, DELHI, , 110003
environment.ntpc@gmail.com

Subject: Expansion of Nabinagar Super Thermal Power Project, Stage-II 3X800 MW from 3x600 MW in an area of 1202.88 Ha (existing) at Village Akorha, Baghi, Meh and Etc, Sub District Nabinagar and Barun, District Aurangabad, Bihar by NTPC Ltd – Terms of References (TOR) -

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project Nabinagar Super Thermal Power Project, Stage-II (3X800 MW) submitted to Ministry vide proposal number IA/BR/THE/462996/2024 dated 16/02/2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24A0601BR5124391N
(ii) File No.	J-13012/127/2007-IA.II(T)
(iii) Clearance Type	TOR
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(d) Thermal Power Plants
(vi) Sector	Thermal Projects
(vii) Name of Project	Nabinagar Super Thermal Power Project, Stage-II (3X800 MW)
(viii) Name of Company/Organization	NTPC LIMITED
(ix) Location of Project (District, State)	AURANGABAD, BIHAR
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

3. The proposal is for the grant of Terms of Reference to Expansion of Nabinagar Super Thermal Power Project, Stage-

II 3X800 MW from 3x600 MW in an area of 1202.88 Ha (existing) at Village Akorha, Baghi, Meh and Etc, Sub District Nabinagar and Barun, District Aurangabad, Bihar by NTPC Ltd.

4. Earlier, the Ministry had issued Environmental Clearance (EC) earlier vide letter no. J-13012/ 127 /2007-IA. II (T); dated 27.12.2010 to the existing project “3x660 MW and is in operational. Total of 1202.88 Ha of land has been acquired to accommodate Main Plant, Township and Ash Dyke of Nabinagar STPP. Approx. 636.29 Ha land has been utilized for Stage-I Units, Ancillary Facilities, Ash Disposal Area and Township, remaining 566.59 Ha of land shall be used for Stage-II Units & Ancillary Facilities & Ash Disposal Area. Out of 566.59 Ha of the area, 243 Ha area is required for ash dyke area. Out of 1202.88 Ha of land, 7.38 Ha is forest land. Stage II FC has been granted vide letter dated 15.11.2019.

5. The Project Proponent made a detailed presentation on the salient features of the project and informed that:

(i) The proposal is for Terms of References (ToR) to the project for Nabinagar Super Thermal Power Project, Stage-II (3X800 MW) located at village Majhiyan in Aurangabad district of Bihar by NTPC Limited.

(ii) All Thermal Power Plant Capacity \geq 500 MW (coal/lignite/naphta & gas based); are listed at S.N. 1(d) of the Schedule to the Environment Impact Assessment (EIA) Notification under category ‘A’ and are appraised at Central Level by Expert Appraisal Committee (EAC).

(iii) The Ministry had issued Environmental Clearance (EC) earlier vide letter no. J-13012/ 127 /2007-IA. II (T); dated 27.12.2010 to the existing project “3x660 MW Super-critical Technology Coal Based Nabinagar Thermal Power Plant at village Majhiyan, in Nabinagar Taluk, in Aurangabad District in Bihar” in favour of M/s. Nabinagar Power Generating Co. Pvt. Ltd.

(iv) The salient features of the project are as follows:

Location Co-ordinate of all four corners:	Village – Majhiyan Taluk – Nabinagar District – Aurangabad State - Bihar PIN – 824304 The geographical co-ordinates of the site are as follows: Main Plant & Township: <ul style="list-style-type: none"> • 24°47'7.03"N, 84° 9'15.77"E • 24°46'47.88"N, 84°10'20.72"E • 24°45'26.54"N, 84° 9'55.42"E • 24°45'46.51"N, 84° 8'44.69"E
Company’s Name	NTPC Limited
Accredited Consultant and certificate no.	Accredited Consultant is in the process of being engaged
Inter- state issue involved	No
Seismic zone	Zone-III

Whether the project is in the Critically Polluted Area (CPA) or within 10 km of CPA. If so, the details thereof:	No
CRZ Clearance	Not Applicable
Cost of the Project (As per EC and revised): Cost of the proposed activity in the amendment:	Nabinagar STPP Stage-I Rs. 12,964.58 Crores (As per EC); Rs. 17304.33 Crores (As per revised cost estimate) Nabinagar STPP Stage-II -Rs. 21,000 Crores (Estimated Cost)
Benefits of the project (specify quantitative information)	Proposed Nabinagar STPP Stage-II (3x800 MW) will have State of Art Ultra Super Critical Technology which has better efficiency

	<p>and less carbon emissions in comparison to sub-critical technology. Installation of High efficiency ESP, FGD and De-Nox System will comply the new emission norms of MOEF&CC.</p> <ul style="list-style-type: none"> · An Air Cooled Condenser (ACC) System is proposed which has much less water requirement. · The setting up of the proposed project will lead to direct and indirect benefits to the overall socio-economic development of the region. · These will also benefit the local population. NTPC has taken up several community welfare and community development activities under Corporate Social Responsibility and this will be strengthened during commissioning of Nabinagar STPP Stage-II.
Status of other Statutory Clearances	CTE & CTO shall be obtained for Stage-II
R&R Details	No R&R Issue since Total of 1202.88 Ha of land has already been acquired to accommodate Main Plant, Township and Ash Dyke of Nabinagar STPP. Approx. 636.29 Ha land has been utilized for Stage-I Units, Ancillary Facilities, Ash Disposal Area and Township, remaining 566.59 Ha of land shall be used for Stage-II Units & Ancillary Facilities & Ash Disposal Area.

(b) Electricity generation capacity:

Capacity & Unit Configurations:	<p>Under Operation Stage-I: 1980 MW (3x660 MW)</p> <p>Proposed Expansion Stage-II: 2400 MW(3x800 MW)</p>
Generation of Electricity Annually	<p>Stage-I: 14.74 Billion Units @85% PLF Stage-II: 18.92 Billion Units @85% PLF</p>

(c) Details of fuel and Ash disposal:

Fuel to be used:	Coal
Quantity of Fuel required per Annum	10.18 MTPA corresponding to 85% PLF
Coal Linkage / Coal Block: (If Block allotted, status of EC & FC of the Block)	<p>The likely coal source for the project is North Karanpura Coalfields of CCL. The coal linkage for the project is yet to be established</p> <p>Ash content in coal-38 % GCV in coal- 4000 Kcal/Kg Sulphur in coal-0.85% Moisture in coal-5.7%</p>
Details of mode of transportation of coal from coal source to the plant premises along with distances	<p>Mode of coal transportation from the coal mines to the power plant shall be MGR and Indian Railways.</p> <p>Total distance from the source by Rail: 259 km (from CCL to NPGC, Nabinagar)</p>
Fly Ash Disposal System Proposed	<p>The bottom ash shall be extracted and disposed off in dry/wet form. The fly ash shall be conveyed in dry form from the electrostatic precipitator hoppers. This dry fly ash is taken to buffer hoppers for its onward transportation in dry form to storage silos near plant boundary for utilization. In case of non-utilization, fly ash shall be taken to HCSD system, where in it shall be mixed with water in agitator tanks for its ultimate disposal in high concentration slurry form to ash disposal area.</p> <p>The ash management scheme for fly ash and bottom ash involves dry collection of fly ash, supply of ash to entrepreneurs for utilisation, promoting ash utilisation and safe disposal of unused ash. NTPC shall</p>

	make maximum efforts to utilise the fly ash for various purposes. Unused fly ash and bottom ash shall be disposed off in the ash pond. Ratio of Water and ash: 40(water): 60 (Ash)																				
a. Ash Pond/ Dyke (Area, Location & Co-ordinates) Average height of area above MSL(m) b. Space left in the ash dyke Area	Stage-I Existing Area of ash Dyke: 202 Ha Co-ordinates: · 24°48'39.03"N, 84° 9'56.48"E · 24°48'16.13"N, 84°11'14.81"E · 24°47'59.96"N, 84°11'10.32"E · 24°47'57.86"N, 84°10'43.08"E · 24°48'16.10"N, 84° 9'39.39"E Stage-II Proposed Area for ash Dyke: 243 Ha Co-ordinates: · 24°48'13.68"N, 84° 9'39.33"E · 24°47'56.18"N, 84°10'40.58"E · 24°47'10.48"N, 84°10'27.38"E · 24°47'29.96"N, 84° 9'22.96"E 121 m Not Applicable on fresh ash dyke is proposed for expansion.																				
Quantity of a. Fly Ash to be generated b. Bottom Ash to be generated:	3094720 TPA 773680 TPA																				
Fly Ash utilization percentage with details in last 5 years	<table border="1"> <thead> <tr> <th>Fin Year</th> <th>Ash Production (LMT)</th> <th>Total AU (LMT)</th> <th>Total AU (%)</th> </tr> </thead> <tbody> <tr> <td>FY 2020 21</td> <td>10.43</td> <td>5.39</td> <td>51.68</td> </tr> <tr> <td>FY 2021 22</td> <td>16.84</td> <td>8.57</td> <td>50.89</td> </tr> <tr> <td>FY 2022 23</td> <td>26.07</td> <td>19.28</td> <td>73.95</td> </tr> <tr> <td>FY 2023 24 (till Jan)</td> <td>26.43</td> <td>14.02</td> <td>53.05</td> </tr> </tbody> </table>	Fin Year	Ash Production (LMT)	Total AU (LMT)	Total AU (%)	FY 2020 21	10.43	5.39	51.68	FY 2021 22	16.84	8.57	50.89	FY 2022 23	26.07	19.28	73.95	FY 2023 24 (till Jan)	26.43	14.02	53.05
Fin Year	Ash Production (LMT)	Total AU (LMT)	Total AU (%)																		
FY 2020 21	10.43	5.39	51.68																		
FY 2021 22	16.84	8.57	50.89																		
FY 2022 23	26.07	19.28	73.95																		
FY 2023 24 (till Jan)	26.43	14.02	53.05																		
Stack Height (m) & Type of Flue	Stage-I Unit-1: 275 m, Single flue Unit-2&3: 275 m, Bi-Flue Stage-II Three single flue stacks of 150 m or one bi-flue stack of 220 m & one single flue stack of 150 m height will be provided																				

(d) Water Requirement:

Source of Water:	The source of water for the project is River Sone located about 3 Km(aerial) from the site.
Quantity of water requirement:	The water requirement for Nabinagar-II (3x800 MW) project would be about 72000 KLD (3000 Cum/hr) with ash water recirculation system.
Distance of source of water from Plant:	5.5 km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	Intake structure shall be constructed
Mode of conveyance of water:	Pipeline
Status of water linkage:	WRD, Govt. of Bihar, vide letter dated 06.06.2007 have accorded water commitment of 125 Cusecs from River Sone to the Nabinagar project.
Cooling system	Air Cooled Condenser System

(e) Land Area Breakup:

	Stage-I	Stage-II	Total
Main Plant (Ha):	125	105	230
BTG, CTs/ACC, Coal Stock Pile, WTP, Sw. Yard etc.			
Other & Misc (Ha): Make-up water corridor, Railways siding, Raw Water Reservoir, Laydown area etc.	202.59	178.59	381.18
Township (Ha)	64	0	64
Ash Dyke (Ha)	202	243	445
Green Belt (Ha)	42.7	40	82.7
Total (Ha)	636.29	566.59	1202.88

(v) The estimated project cost is Rs 38,304.33 Crores including existing investment of Rs 17,304.33 Crores. The cost of Pollution Control & Environment Management is approx. 12.5% of the project cost i.e. Rs 2600 Crores out of Rs. 21000 Crores for 3x800 MW with ACC and the Recurring cost will be about Rs 52.00 Crores per annum.

(vi) Total Employment will be 216 persons as direct & 1500 persons indirect after expansion. Industry proposes to allocate Rs. 26.25 Cr. @ of 0.125% towards CER.

(vii) There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. River/ water body Sone River is flowing at a distance of 2.0 km in West direction.

(viii) Effluent of 1200 KLD & 1000 KLD quantity will be treated through ETP & STP respectively in Stage-II. The plant will be based on Zero Liquid discharge.

(ix) Power requirement after expansion will be 300 MW including existing 114 MW and will be met from Nabinagar STPP Stage-I. Existing unit has four DG sets of 1500 KVA capacity, additionally 04 DG sets are used as standby during power failure. Stack (height 28.5 m) will be provided as per CPCB norms to the proposed DG sets.

(x) Existing unit has 2120 TPH (BMCR) pulverized coal fired boiler. Additionally, 2600 TPH pulverized coal fired boiler will be installed. ESP with a stack of height of 150/ 220 m will be installed for controlling the particulate emissions within the statutory limit of 30 mg/Nm³ for the proposed boilers.

(xi) Status of Litigation Pending against the proposal, if any.: No Litigation Pending against the proposal.

6. The EAC in the 6th meeting held on 27.02.2024 after detailed deliberation on the information submitted and as presented during the meeting recommended for grant of Standard ToR for conducting EIA study with Public Hearing to the project for expansion of Nabinagar Super Thermal Power Project, Stage-II 3X800 MW from 3x600 MW in an area of 1202.88 Ha (existing) at Village Akorha, Baghi, Meh and etc, Sub District Nabinagar and Barun, District Aurangabad, Bihar by NTPC Ltd, under the provisions of the EIA Notification, 2006, as amended along with the additional/specific ToR and Standard ToR applicable to the project.

7. MoEF&CC has examined the proposal in accordance with the provisions contained in the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and based on the recommendations of the EAC hereby **accords** Standard Terms of Reference alongwith Specific/additional ToR (**Annexure 1**) to NTPC Ltd for expansion of Nabinagar Super Thermal Power Project, Stage-II 3X800 MW from 3x600 MW in an area of 1202.88 Ha (existing) at Village Akorha, Baghi, Meh and etc, Sub District Nabinagar and Barun, District Aurangabad, Bihar under the provisions of the EIA Notification, 2006, and as amended thereof.

8. The Ministry reserves the right to stipulate additional conditions, if found necessary.

9. The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

10. This issues with the approval of the Competent Authority.

Copy To

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001.
2. The chairman, CEA, Sewa Bhawan, R K Puram , New Delhi -110066
3. Deputy Director General of Forests (C),Ministry of Environment, Forest and Climate Change, Regional Office, 2nd Floor, Headquarter- Jharkhand State Housing Board,Harmu Chowk, Ranchi, Jharkhand – 834002, Ranchi
4. The Chairman, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi
5. The Chairman, Bihar State Pollution Control Board, Parivesh Bhawan, Patliputra Industrial Area, Patna-10.
6. The District Collector, Auragabad, Government of Madhya Pradesh
7. PARIVESH Portal

Annexure 1

Specific Terms of Reference for (Thermal Power Plants)

1. [A] Environmental Management And Biodiversity Conservation

S. No	Terms of Reference
1.1	PP shall carry out alternative site analysis for disposal of ash pond. Explore all the possibility to minimize to land requirement of ash pond area. Either by increasing ash utilization or by increasing ash dyke height.
1.2	A wildlife conservation plan shall be prepared, in consultation with the State Forest and Wildlife Department, with adequate funds for wildlife habitat management, preserving wildlife and its corridors and be submitted along with the EIA/EMP report. Human-wildlife conflict issues shall be studied and such incidences reported in the study area during the last 10 years shall be submitted. No provision for purchasing the vehicle shall be made in the wildlife conservation plan.
1.3	Details of the existing rail, and road networks and alignment of transmission lines along with the quantity of coal being transported/to be transported for existing units and proposed expansion, its source and transportation mode shall be submitted.
1.4	Radioactivity studies along with coal analysis to be provided (sulphur, ash percentage and heavy metals including Pb, Cr, As and Hg). Details of auxiliary fuel, if any including its quantity, quality, storage, etc should also be given.
1.5	A comparative chart shall be prepared with changes observed from previous baseline study and present baseline study.
1.6	PP should submit the detailed plan in tabular format (year-wise for life of project) for afforestation and green belt development in and around the project site. The PP should submit the number of saplings to be planted, area to be covered under afforestation & green belt, location of plantation, target for survival rate and budget earmarked for the afforestation & green belt development. In addition to this PP should show on a surface plan (5-year interval for life of project) of suitable scale the area to be covered under afforestation & green belt clearly mentioning the latitude and longitude of the area to be covered during each 5 years. The capital and recurring expenditure to be incurred needs to be submitted. Plantation plan should be prepared in such a way that 80% of the plantation to be carried out in first 5 years and for the remaining years the proposal for gap filling. The seedling of height not less than 2 meters to be selected and accordingly cost of plantation needs

S. No	Terms of Reference
	to be decided. In addition to this, plantation in the safety zone at project boundary the plantation should be planned in such a way that it should be completed within 2 years only.
1.7	Action plan for development of green belt (40% of total project cover area) along the periphery of the project boundary shall be provided with a drone video clip of existing green belt. Plan shall be dully approved by the local forest department.
1.8	A detailed plan need to be submitted for undertaking extensive green plantation within 10 km radius of the plant focusing on water reservoir, school, hospital and other institutional area and same need to be incorporated in EIA/EMP report.
1.9	Detailed action plan shall be prepared for maintenance of air pollution control equipment for proposed and existing units and shall be incorporated in EIA/EMP report.
1.10	Details of Ash management of existing (last 5 years) and proposed project shall be submitted, along with 5-year plan for 100 % ash utilization.
1.11	Details of Dry Ash handling system along with supplementary coal handling system shall be submitted.
1.12	Proper protection measures like HDPE lining, appropriate height of bund and adequate distance between proposed Ash pond and water body (minimum 60 meter) etc. shall be planned so as to reduce the possibility of mixing of leachate with any fresh water body for under construction ash pond. High Density Slurry disposal plan shall be prepared.
1.13	Pond and ground water quality (10 locations within 2 km radius of the plant boundary) shall be studied and report be submitted along with EIA/EMP. Action plan for Ground water monitoring stations on all hotspots like schools/hospitals within 2 km radius of the plant boundary be submitted.
1.14	Baseline Study for Heavy metals in Ground water, Surface water and soil to be carried out and incorporated in EIA/EMP report.
1.15	Details pertaining to water source, treatment and discharge should be provided.
1.16	Zero Liquid Discharge plan shall be submitted.
1.17	PP shall submit action plan for using treated Sewage/Domestic wastewater for its operations.
1.18	Project Proponent to conduct Environmental Cost Benefit Analysis for the project in EIA/EMP Report.
1.19	An action plan shall be prepared for Water shed development within 10 km radius of the plant boundary in consultation with reputed government institution and incorporated in EIA/EMP report.
1.20	PP should clearly bring out that what is the specific diesel consumption ~ (Liters/Tonne of total material handled) and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted. PP shall also explore the possibility of using e-vehicles/LNG/CNG based machineries and trucks for operation and transportation of Coal and ash.

S. No	Terms of Reference
1.21	Cumulative Environmental Impact Assessment study of all the existing and proposed projects in the 15-km radius of the proposed project shall be conducted and the same shall be included the in EIA/EMP report. Details of industrial units present in 10 Km radius of the power plant shall be submit.

2. [C] Socio-economic Study

S. No	Terms of Reference
2.1	As per the Ministry's OM dated 30.09.2020, to address the concern raised during Public Hearing, Project Proponent is required to submit the detailed activities proposed with year wise budgetary provision (Capital and recurring) for 10 years. Activities proposed shall be part of EMP. Tentative no.of project affected families shall be identified and accordingly appropriate Rehabilitation &Resettlement plan shall be prepared. The recommendation Socio-economic study may also be considered while planning the activities & budget.
2.2	Demographic details in 10 km area shall be submitted.
2.3	Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local populace.

3. [D] Miscellaneous

S. No	Terms of Reference
3.1	PP shall align its activities to one/few of the Sustainable Development Goals (SDG) and start working on the mission of net zero by 2050. PPs shall update the same to the EAC.
3.2	PP shall submit the EIA/EMP report after the plagiarism check using authenticated plagiarism software.
3.3	Certified compliance report of previous EC certified by Regional office of the MoEF&CC shall provide. Specific observations on the status of OCMS, ash utilization, green cover and emission control equipment of all units of the plant shall be done. In case of any non-compliance the PP shall submit the ATR to concerned RO and get it closed before applying to the Ministry.
3.4	Detailed description of all the court cases including all directions given by the apex and currents status of them shall submit.
3.5	PP should provide in the EIA Report details of all the statutory clearances, permissions, no objection certificates, consents etc. required for this project under various Acts, Rules and regulations and their status or estimated timeline after grant of EC.
3.6	PP shall submit details of court cases and its status for the project.
3.7	The PP should submit the photograph of monitoring stations & sampling locations. The photograph

S. No	Terms of Reference
	should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples
3.8	PP should clearly bring out the details of the manpower to be engaged for this project with their roles /responsibilities/designations. In addition to this PP should mention the number and designation of person to be engaged for implementation of environmental management plan (EMP). The capital and recurring expenditure to be incurred needs to be submitted.
3.9	PP should submit the year-wise, activity wise and time bound budget earmarked for EMP, occupational health surveillance, and activities proposed to address the issues raised during Public Hearing. The capital and recurring expenditure to be incurred needs to be submitted.
3.10	Aerial view video of project site and transportation route proposed for this project shall be recorded through drone and be submitted.
3.11	In case of ground water abstraction/intersection. The PP shall comply with the Ministry's OM dated 23/05/2019. Compliance status needs to be presented before EAC at the time of appraisal.
3.12	PP should submit the quantity of surface or ground water to be used for this project. The complete water balance cycle need to be submitted. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. The PP should submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.
3.13	All the certificates viz. Involvement of Forest land, distance from protected area, list of flora & fauna should be duly authenticated by Forest Department. The Certificate should bear the name, designation, official seal of the person signing the certificate and dispatch number.
3.14	Plot the wind rose diagram using the typical meteorological year (TMY) data for the period considered for the study. The monitoring units shall be deployed in the field based on the coverage area ratio and direction of the wind. A mathematical model shall be developed for the local site rather than using the standard model available in software for both air & water quality modelling.

4. [B] Disaster Management

S. No	Terms of Reference
4.1	Disaster Management Plan shall be prepared and incorporated in EIA/EMP report.

Standard Terms of Reference for (Thermal Power Plants)

1. Statutory Compliance

S. No	Terms of Reference
1.1	The proposed project shall be given a unique name in consonance with the name submitted to other

S. No	Terms of Reference
	Government Departments etc. for its better identification and reference.
1.2	Vision document specifying prospective long term plan of the project shall be formulated and submitted.
1.3	Latest compliance report duly certified by the Regional Office of MoEF&CC for the conditions stipulated in the environmental and CRZ clearances of the previous phase(s) for the expansion projects shall be submitted.

2. Details Of The Project And Site

S. No	Terms of Reference
2.1	The project proponent needs to identify minimum three potential sites based on environmental, ecological and economic considerations, and choose one appropriate site having minimum impacts on ecology and environment. A detailed comparison of the sites in this regard shall be submitted.
2.2	Executive summary of the project indicating relevant details along with recent photographs of the proposed site (s) shall be provided. Response to the issues raised during Public Hearing and the written representations (if any), along with a time bound Action Plan and budgetary allocations to address the same, shall be provided in a tabular form, against each action proposed.
2.3	Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and for expansion projects, status of implementation shall also be submitted.
2.4	The geographical coordinates (WGS 84) of the proposed site (plant boundary), including location of ash pond along with topo sheet (1:50,000 scale) and IRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/River and high tide level from the sea shall be specified, if the site is located in proximity to them.
2.5	Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.
2.6	Land requirement for the project shall be optimized and in any case not more than what has been specified by CEA from time to time. Item wise break up of land requirement shall be provided.
2.7	Present land use (including land class/kism) as per the revenue records and State Govt. records of the proposed site shall be furnished. Information on land to be acquired including coal transportation system, laying of pipeline, ROW, transmission lines etc. shall be specifically submitted. Status of land acquisition and litigation, if any, should be provided.
2.8	If the project involves forest land, details of application, including date of application, area applied for, and application registration number, for diversion under FCA and its status should be provided along with copies of relevant documents.
2.9	The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.

S. No	Terms of Reference
2.10	Satellite imagery and authenticated topo sheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest habitations (villages), creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.
2.11	Topography of the study area supported by toposheet on 1:50,000 scale of Survey of India, along with a large scale map preferably of 1:25,000 scale and the specific information whether the site requires any filling shall be provided. In that case, details of filling, quantity of required fill material; its source, transportation etc. shall be submitted.

3. Ecology Biodiversity And Environment

S. No	Terms of Reference
3.1	A detailed study on land use pattern in the study area shall be carried out including identification of common property resources (such as grazing and community land, water resources etc.) available and Action Plan for its protection and management shall be formulated. If acquisition of grazing land is involved, it shall be ensured that an equal area of grazing land be acquired and developed and detailed plan submitted.
3.2	Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized by him.
3.3	A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on potentially mineable mineral deposit shall be submitted.
3.4	The water requirement shall be optimized (by adopting measures such as dry fly ash and dry bottom ash disposal system, air cooled condenser, concept of zero discharge) and in any case not more than that stipulated by CEA from time to time, to be submitted along with details of source of water and water balance diagram. Details of water balance calculated shall take into account reuse and re-circulation of effluents.
3.5	Water body/Nallah (if any) passing across the site should not be disturbed as far as possible. In case any Nallah / drain is proposed to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of proposed diversion shall be furnished duly approved by the concerned Department of the State.
3.6	It shall also be ensured that a minimum of 500 m distance of plant boundary is kept from the HFL of river system / streams etc. and the boundary of site should also be located 500 m away from railway track and National Highways.
3.7	Hydro-geological study of the area shall be carried out through an institute/ organization of repute to assess the impact on ground and surface water regimes. Specific mitigation measures shall be spelt out and time bound Action Plan for its implementation shall be submitted
3.8	Detailed Studies on the impacts of the ecology including fisheries of the River/Estuary/Sea due to the proposed withdrawal of water / discharge of treated wastewater into the River/Sea etc shall be carried out and submitted along with the EIA Report. In case of requirement of marine impact

S. No	Terms of Reference
	assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.
3.9	Source of water and its sustainability even in lean season shall be provided along with details of ecological impacts arising out of withdrawal of water and taking into account inter-state shares (if any). Information on other competing sources downstream of the proposed project and commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter / document stating firm allocation of water.
3.10	Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished. In addition, wherever ground water is drawn, PP shall submit detailed plan of Water charging activity to be undertaken.
3.11	Feasibility of near zero discharge concept shall be critically examined and its details submitted.
3.12	Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.
3.13	Plan for recirculation of ash pond water and its implementation shall be submitted.
3.14	Detailed plan for conducting monitoring of water quality regularly with proper maintenance of records shall be formulated. Detail of methodology and identification of monitoring points (between the plant and drainage in the direction of flow of surface / ground water) shall be submitted. It shall be ensured that parameter to be monitored also include heavy metals. A provision for long-term monitoring of ground water table using Piezometer shall be incorporated in EIA, particularly from the study area.
3.15	Hazards Characterization: Past incidents of hazard events within 10km radius of project area with detailed analysis of causes and probability of reoccurrence

4. Environmental Baseline Study And Mitigation Measures

S. No	Terms of Reference
4.1	One complete season (critical season) site specific meteorological and AAQ data (except monsoon season) as per latest MoEF&CC Notification shall be collected along with past three year's meteorological data for that particular season for wind speed analysis and the dates of monitoring shall be recorded. The parameters to be covered for AAQ shall include PM10, PM2.5, SO2, NOx, CO and Hg. The location of the monitoring stations should be so decided so as to take into consideration the upwind direction, pre-dominant downwind direction, other dominant directions, habitation and sensitive receptors. There should be at least one monitoring station each in the upwind and in the pre - dominant downwind direction at a location where maximum ground level concentration is likely to occur.
4.2	In case of expansion project, air quality monitoring data of 104 observations a year for relevant parameters at air quality monitoring stations as identified/stipulated shall be submitted to assess for compliance of AAQ Standards (annual average as well as 24 hrs).
4.3	A list of industries existing and proposed in the study area shall be furnished.

S. No	Terms of Reference
4.4	Cumulative impacts of all sources of emissions including handling and transportation of existing and proposed projects on the environment of the area shall be assessed in detail. Details of the Model used and the input data used for modelling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The windrose and isopleths should also be shown on the location map. The cumulative study should also include impacts on water, soil and socio-economics.
4.5	Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
4.6	Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
4.7	Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished. The Ministry's Notification dated 02.01.2014 regarding ash content in coal shall be complied. For the expansion projects, the compliance of the existing units to the said Notification shall also be submitted
4.8	Details of transportation of fuel from the source (including port handling) to the proposed plant and its impact on ambient AAQ shall be suitably assessed and submitted. If transportation entails a long distance it shall be ensured that rail transportation to the site shall be first assessed. Wagon loading at source shall preferably be through silo/conveyor belt.
4.9	For proposals based on imported coal, inland transportation and port handling and rail movement shall be examined and details furnished. The approval of the Port and Rail Authorities shall be submitted.
4.10	Details regarding infrastructure facilities such as sanitation, fuel, restrooms, medical facilities, safety during construction phase etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase should be adequately catered for and details furnished.

5. Environmental Management Plan

S. No	Terms of Reference
5.1	EMP to mitigate the adverse impacts due to the project along with item - wise cost of its implementation in a time bound manner shall be specified.
5.2	A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be prepared. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided. Provision for mock drills shall be suitably incorporated to check the efficiency of the plans drawn.
5.3	The DMP so formulated shall include measures against likely Fires/Tsunami/Cyclones/Storm Surges/ Earthquakes etc, as applicable. It shall be ensured that DMP consists of both On-site and

S. No	Terms of Reference
	Off-site plans, complete with details of containing likely disaster and shall specifically mention personnel identified for the task. Smaller version of the plan for different possible disasters shall be prepared both in English and local languages and circulated widely.
5.4	Details of fly ash utilization plan as per the latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash along with monitoring mechanism.

6. Green Belt Development

S. No	Terms of Reference
6.1	Detailed scheme for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least 3 tiers around plant boundary not less than 2000 tree per ha with survival rate of more than 85% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports in case of expansion projects. A shrub layer beneath tree layer would serve as an effective sieve for dust and sink for CO ₂ and other gaseous pollutants and hence a stratified green belt should be developed.
6.2	Over and above the green belt, as carbon sink, plan for additional plantation shall be drawn by identifying blocks of degraded forests, in close consultation with the District Forests Department. In pursuance to this the project proponent shall formulate time bound Action Plans along with financial allocation and shall submit status of implementation to the Ministry every six months

7. Socio-economic Activities

S. No	Terms of Reference
7.1	Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out through a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of the local communities.
7.2	Action Plan for identification of local employable youth for training in skills, relevant to the project, for eventual employment in the project itself shall be formulated and numbers specified during construction & operation phases of the Project.
7.3	If the area has tribal population, it shall be ensured that the rights of tribals are well protected. The project proponent shall accordingly identify tribal issues under various provisions of the law of the land.
7.4	A detailed CER plan along with activities wise break up of financial commitment shall be prepared in terms of the provisions OM No. 22-65/2017-IA.III dated 30.09.2020. CER component shall be identified considering need based assessment study and Public Hearing issues. Sustainable income generating measures which can help in upliftment of affected section of society, which is consistent with the traditional skills of the people shall be identified.
7.5	While formulating CER schemes it shall be ensured that an in-built monitoring mechanism for the schemes identified are in place and mechanism for conducting annual social audit from the nearest

S. No	Terms of Reference
	government institute of repute in the region shall be prepared. The project proponent shall also provide Action Plan for the status of implementation of the scheme from time to time and dovetail the same with any Govt. scheme(s). CER details done in the past should be clearly spelt out in case of expansion projects.
7.6	R&R plan, as applicable, shall be formulated wherein mechanism for protecting the rights and livelihood of the people in the region who are likely to be impacted, is taken into consideration. R&R plan shall be formulated after a detailed census of population based on socio economic surveys who were dependant on land falling in the project, as well as, population who were dependant on land not owned by them.
7.7	Assessment of occupational health and endemic diseases of environmental origin in the study area shall be carried out and Action Plan to mitigate the same shall be prepared.
7.8	Occupational health and safety measures for the workers including identification of work related health hazards shall be formulated. The company shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in non-conductive environment shall be carried out and precautionary measures like use of personal equipments etc. shall be provided. Review of impact of various health measures undertaken at intervals of two to three years shall be conducted with an excellent follow up plan of action wherever required.

8. Corporate Environment Policy

S. No	Terms of Reference
8.1	Does the company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
8.2	Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
8.3	What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions. Details of this system may be given.
8.4	Does the company has compliance management system in place wherein compliance status along with compliances / violations of environmental norms are reported to the CMD and the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be detailed in the EIA report.

9. Miscellaneous

S. No	Terms of Reference
9.1	All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.

S. No	Terms of Reference
9.2	Details of litigation pending or otherwise with respect to project in any Court, Tribunal etc. shall invariably be furnished.
9.3	In case any dismantling of old plants are envisaged, the planned land use & land reclamation of dismantled area to be furnished.

10. Additional Tor For Coastal Based Thermal Power Plants Projects (Tpps)

S. No	Terms of Reference
10.1	Low lying areas fulfilling the definition wetland as per Ramsar Convention shall be identified and clearly demarcated w.r.t the proposed site.
10.2	If the site includes or is located close to marshy areas and backwaters, these areas must be excluded from the site and the project boundary should be away from the CRZ line. Authenticated CRZ map from any of the authorized agencies shall be submitted.
10.3	The soil levelling should be minimum with no or minimal disturbance to the natural drainage of the area. If the minor canals (if any) have to be diverted, the design for diversion should be such that the diverted canals not only drains the plant area but also collect the volume of flood water from the surrounding areas and discharge into marshy areas/major canals that enter into creek. Major canals should not be altered but their embankments should be strengthened and desilted.
10.4	Additional soil required for levelling of the sites should as far as possible be generated within the site itself in such a manner that the natural drainage system of the area is protected and improved.
10.5	Marshy areas which hold large quantities of flood water to be identified and shall not be disturbed.
10.6	No waste should be discharged into Creek, Canal systems, Backwaters, Marshy areas and seas without appropriate treatment. Wherever feasible, the outfall should be first treated in a Guard Pond and then only discharged into deep sea (10 to 15 m depth). Similarly, the Intake should be from deep sea to avoid aggregation of fish and in no case shall be from the estuarine zone. The brine that comes out from Desalination Plants (if any) should not be discharged into sea without adequate dilution.
10.7	Mangrove conservation and regeneration plan shall be formulated and Action Plan with details of time bound implementation shall be specified, if mangroves are present in Study Area.
10.8	A common Green Endowment Fund should be created by the project proponents out of EMP budgets. The interest earned out of it should be used for the development and management of green cover of the area.
10.9	Impact on fisheries at various socio economic level shall be assessed.
10.10	An endowment Fishermen Welfare Fund should be created out of CER grants not only to enhance their quality of life by creation of facilities for Fish Landing Platforms / Fishing Harbour / cold storage, but also to provide relief in case of emergency situations such as missing of fishermen on duty due to rough seas, tropical cyclones and storms etc.

S. No	Terms of Reference
10.11	Tsunami Emergency Management Plan shall be prepared wherever applicable and Plan submitted prior to the commencement of construction work.
10.12	There should not be any contamination of soil, ground and surface waters (canals & village pond) with sea water in and around the project sites. In other words necessary preventive measures for spillage from pipelines, such as lining of Guard Pond used for the treatment of outfall before discharging into the sea and surface RCC channels along the pipelines of outfall and intake should be adopted. This is just because the areas around the projects boundaries could be fertile agricultural land used for paddy cultivation.

Additional Terms of Reference

As per the Ministry's OM dated 3.11.2023, Project Proponent is required to transfer EC dated 2010 from M/s Nabinagar Power Generation Company Pvt. Ltd.(NPGCL) is a joint venture between NTPC and Bihar State Power Generation Company Limited to M/s Nabinagar Power Generation Company Pvt. Ltd.(NPGCL), a wholly owned subsidiary of NTPC.

