NTPC Limited

(A Government of India Enterprise)

Enlistment of Consultants
For
Environmental Impact Assessment (EIA) Studies of Coal / Gas based Thermal Power Projects

DOCUMENT NO.: CS-0000-717-9/Rev-01

ENLISTMENT OF CONSULTANTS FOR ENVIRONMENTAL IMPACT ASSESSMENT (EIA) STUDIES OF COAL / GAS BASED THERMAL POWER PROJECTS.

Enlistment Group: CCG-01

1.0 NTPC Limited invites online applications from eligible domestic Agencies for the above mentioned Enlistment. The tentative brief Scope of work is as follows:

The aim of the EIA study is to establish the existing baseline environmental conditions, predict impacts of the power plant and associated facilities, and formulate Environmental Management Plan and develop a post study monitoring programme. The EIA Report is required for conducting Public Hearing by State Pollution Control Board (SPCB), Environmental Clearance (EC) from Ministry of Environment, Forest and Climate Change (MOEF&CC) and Consent to Establish (CTE) from SPCB.

The brief scope of services includes literature review, field studies, impact assessment and preparation of the EIA documents (Draft EIA Report, Executive Summary of Draft EIA Report in English and Local Language and Comprehensive EIA Report etc.) covering the disciplines of Land Use, Water Use, Demography & Socio-economics, Geology, Soils, Sediments, Hydrology, Water Quality, Meteorology, Air Quality, Terrestrial Ecology, Aquatic Ecology, Noise, Risk Assessment, Occupational Health and Safety and Cumulative Impact Assessment from all sources in study area etc.

The EIA Study/Report is to be undertaken/prepared in accordance with the provisions of MOEF&CC EIA notifications dated 14.09.2006 and amended thereof. The EIA Study/ Report needs to be in compliance to the conditions of Terms of Reference (TOR) as accorded by MOEF&CC for a project.

The consultant will be required to present the findings of the EIA Report before the Public Hearing meeting, SPCB, Forest Department, Forest Advisory Committee (FAC), Expert Committee of MOEF&CC and other regulatory agencies and submit all clarifications/replies to the queries, as and when required.

The brief scope of work for EIA Studies outlined above is indicative and not exhaustive. The detailed scope of work for EIA study is finalized for a project after Terms of Reference (TOR) is approved by MOEF&CC, and it may vary from project to project.

BRIEF SCOPE OF WORK FOR EIA/EMP STUDIES OF COAL/GAS BASED THERMAL POWER PROJECTS

The brief scope of work for EIA Studies outlined below is indicative and not exhaustive. The detailed scope of work for EIA study is finalized for a project after Terms of Reference (TOR) is approved by MOEF&CC, and it may vary from project to project.

1.0 OBJECTIVE:

The aim of the EIA study is to establish the existing baseline environmental conditions, predict impacts of the power plant and associated facilities, and formulate Environmental Management Plan and develop a post study monitoring programme. The EIA Report is required for conducting Public Hearing by State Pollution Control Board (SPCB), Environmental Clearance (EC) from Ministry of Environment, Forest and Climate Change (MOEF&CC) and Consent to Establish (CTE) from SPCB.

2.0 SCOPE OF SERVICES:

The brief scope of services includes literature review, field studies, impact assessment and preparation of the EIA documents (Draft EIA Report, Executive Summary of Draft EIA Report in English and Local Language and Comprehensive EIA Report etc.) covering the disciplines of Land Use, Water Use, Demography & Socio-economics, Geology, Soils, Sediments, Hydrology, Water Quality, Meteorology, Air Quality, Terrestrial Ecology, Aquatic Ecology, Noise, Risk Assessment, Occupational Health and Safety and Cumulative Impact Assessment from all sources in study area etc.

The EIA Study/Report is to be undertaken/prepared in accordance with the provisions of MOEF&CC EIA notifications dated 14.09.2006 and amended thereof. The EIA Study/ Report needs to be in compliance to the conditions of Terms of Reference (TOR) as accorded by MOEF&CC for a project.

The consultant will be required to present the findings of the EIA Report before the Public Hearing meeting, SPCB, Forest Department, Forest Advisory Committee (FAC), Expert Committee of MOEF&CC and other regulatory agencies and submit all clarifications/replies to the queries, as and when required.

3.0 BASELINE DATA

The baseline environmental conditions are established through literature survey and field studies/monitoring. The EIA study is to be conducted incorporating twelve months (12) field monitoring baseline data covering all the disciplines of environment, to accommodate monthly/seasonal variations.

The information mentioned in Tables-I and II are only indicative and not exhaustive and may vary from project to project. The consultant shall explore all possible sources for data collection and generate relevant data as required in Gazette Notification on EIA by MOEF&CC dated 14.09.2006 and amended thereof.

TABLE-1: ESTABLISHMENT OF BASELINE CONDITIONS: PRIMARY DATA COLLECTION/ MONITORING SCHEDULE

FIELD/ PARAMETERS	NO. OF SAMPLING LOCATION	FREQUENCY	REMARK
Ambient Air Quality			
SO_2 NO_X TSPM PM_{10} $PM_{2.5}$	6 (Six)	Twice a week	• 24 hour sampling at each location using appropriate Ambient Air Quality Sampler (AAQS) as per CPCB/MOEF&CC guidelines. Consultant has to deploy 6 (Six) numbers of AAQS at site. Analysis of samples should be as per Gazette notification dated 16.11.2009 on AAQ. • At least one monitoring stations each to be identified in upwind and predominant downwind directions.
O_3 (Ground Level) Hg CO	6 (Six)	Once in a month on 8 hourly basis.	
Meteorology			
Wind speed & direction	1 (One)	Continuous (averaging time of 1 hour)	A permanent meteorological station is to be established at site for monitoring the meteorological parameters like wind speed & direction, temperature (at 2 m and 10 m height), solar radiation, humidity, atmospheric pressure, rainfall.
Max. & Minimum Temp. (Wet & Dry bulb Temp.)		Daily (at 8.30 & 17.30 IST)	
Solar radiation		Continuous (averaging time of 1 hour)	
Humidity		Daily at 8.30 & 17.30 IST	
Atmospheric pressure		Daily at 8.30 & 17.30 IST	
Rainfall		Daily	
Storm		Daily	
Temperature at 2 m and 10 m height		Continuous (averaging time of 1 hour)	
Water Quality (Surface & Ground Water)			
Physical parameters: pH, Temp., DO, conductivity & TSS	Six	Monthly	Consultant has to set up site laboratory for these parameters during the period of study.
Chemical Parameters: Total Dissolved Solids, Alkalinity, Hardness, BOD, COD, NO_3, PO_4, Cl, SO_4, Na, K, Ca, Mg, Silica, oil & grease,	Six	Monthly	Consultant has to specify the laboratory facilities for analysis of these parameters.

FIELD/ PARAMETERS	NO. OF SAMPLING LOCATION	FREQUENCY	REMARK
phenolic compounds			
Bacteriological MPN and Total coliform	Six	Monthly	As above
Heavy metals (As, Hg, Pb, Cd, Cr-6, total Cr, Cu, Zn, Se, Fe).	Six	Quarterly	As above
Soil			
pH, conductivity, cation exchange capacity; Total N, P, K, Mercury, sand, silt and clay etc	Ten	Twice a year	As above Composite soil sampling to be undertaken
Infiltration Tests	Ten	Twice a year	In and around ash disposal area
Noise			
Leq	Ten	Twice a year	24 hourly sampling at each location using an integrating sound level meter
Aquatic/Marine Ecology			
Phytoplankton, Zooplankton, Fish	Three	Twice a year	Surface water bodies in the study area to be covered. Study of Intake water source to be characterized.
Terrestrial Ecology			
Density, diversity, abundance of species, IVI	Three	Twice a year	Different terrestrial ecosystems in the study are need to cover
Rain Water Analysis			
Quantity, pH, Conductivity, SO^{++}_4, Cl^- ,NO^-_3	Three	Pre monsoon, post monsoon & winter	

TABLE-II: ESTABLISHMENT OF BASELINE CONDITIONS: SUMMARY OF SCOPE

Discipline	Scope
General	• General description of the core study area (10 km radius around project site) and general study area (25 km radius around project site) • Highlight land, fuel and water requirements for the project and associated facilities as assessed by NTPC in Feasibility Report. • Infrastructure facilities and amenities available within the study area.

Discipline	Scope
Land Use	• Procurement and analysis of current Satellite Imagery for core study area *i.e., 10 Km radius* along with ground truth verification. • Classification of land use for the Main Plant area, Township area and Ash pond / Ash disposal area, with latest satellite imagery along with ground truth verification. • Analysis of Census Data for various land uses within core area to be carried out.
Water Use	• Assessment of water sources, current water use and identify conflicts, if any for core study area based on secondary data.
Demography & Socio-economics	• Detailed Socio-economic Survey of Study area. • Establishment of demographic characteristics and occupational structure of population within and core study area based on latest Census Data (viz. 2011)
Geology	• Presentation of geological map, geological profile and brief geological description of the study area, especially with respect to ash disposal area, based on secondary data.
Soil	• Establishment of physico-chemical characteristics and nutrient levels of soil in core study area based on primary data generation (Table-1). • Establishment of infiltration characteristics of soil in and around the ash disposal area based on primary data generation (Table-1).
Hydrology	• Establishment of surface and ground water hydrology of core study area based on secondary data.
Water Quality	• Establishment of physico-chemical characteristics, pollution levels and bacteriological contamination of surface and ground water bodies in the core study area through primary data generation (Table-1). • Sampling & monitoring to be done at the water intake source and outfall/discharge point.
Meteorology	• Monitoring of On-site Meteorological Parameters by setting up a meteorological station at site. (Table-1). • Collection of climatological data from nearest IMD station for long term analysis of climatological parameters for a period not less than 10 years.

Discipline	Scope
Air quality	• Establishment of Ambient Air Quality in core study area through primary data generation (Table-1). • At least one monitoring station each in the upwind and in the pre dominant downwind direction to be selected for analyzing the likely maximum ground level concentration of pollutants. • Cumulative impact assessment on ambient air quality due to proposed plant and others (including existing sources as well as other proposed source of emission) to be carried out. • To undertake coastal fumigation modeling to envisage likely impact in coastal environment (if applicable). • Analysis of rain water of the first rain.
Terrestrial Ecology	• General description of terrestrial ecosystems based on secondary data and seasonal field sampling • Listing of flora & fauna along with rare and endangered species present in the study area as per Wild life Act,1972 • List of flora and fauna duly authenticated by DFO / Chief Wildlife Warden. • Development of vegetation map with special demarcation of different kind of forests in the core study area through interpretation of satellite imagery including ground truth verification
Aquatic Ecology	• General description of aquatic ecosystems in core study area based on secondary data and primary data generation seasonal field sampling. (Table-1). • Identification of flora and fauna and endangered species in the surface water body falling in the study area. • Listing of fish in the receiving water body with special reference to spawning and breeding zone. • Listing of other species in the water body.
Noise	• Monitoring of noise at critical locations in and around the power plant in core study area through primary data generation (Table-1).
Risk & Disaster Management Plan	• Outline the major risk envisaged due to the project and its associated facilities and preparation of disaster management plan. • Fire pool modeling to plot the radiation contour due to emergency situations arising due to fire, explosion etc.

4.0 IMPACT ASSESSMENT

The features of the power plant which are likely to have impact on the environment have to be discussed in detail covering particulates and gaseous emissions, liquid effluents, solid wastes, noise, soil, ecology etc. The impacts will be assessed for both construction and operation phases. Both short term and long term impacts on sensitive areas if any such as habitat of endangered species of wildlife or plants, sites/monuments of historical and cultural importance, centers with concentrated

population in the core/study area etc, will be established wherever applicable. Special reference should be made with respect to the following impacts.

4.1 Air Quality Impact:

A computer based internationally recognized mathematical air quality model (e.g. ISC3, AERMOD) suitable for the region will be identified and run to predict the concentration of SO_2, NOx and PM_{10} due to the operation of the power plant. The results will be presented for annual, seasonal and short term (24 hourly) concentrations over a radius of 10 km around the plant.

4.2 Water Quality Impact:

The impact of liquid effluents on natural water bodies receiving the effluents shall be established and significant parameters, which are likely to change critically, shall be clearly spelt out.

4.3 Impact on Land Use:

The classification of land with respect to agricultural/forest/waste/Govt./Private and Revenue should also be indicated. The direct and indirect impacts of construction of power projects on the land use of the study area shall be assessed based on experience.

4.4 Impact on Ecology:

Impacts on terrestrial and aquatic ecosystems shall be established qualitatively based on predicted changes in the ambient air and water quality and experiences in similar power projects.

4.5 Impact on Noise Levels:

The noise level at varying distances for multi-sources will be predicted using suitable noise model.

4.6 Social Impacts

Impacts on demographic and socio-economic characteristics of the population shall be established qualitatively based on experiences in similar power projects. In addition, the impacts of displacement and needs for rehabilitation and resettlement of people from whom the land is to be acquired for the project affected persons shall be covered. A detailed Social survey of area will be conducted to prepare CSR/CER plans.

4.7 Cumulative Impact Assessment:

The Assessment of cumulative impact on ambient air quality (AAQ) of the study area due to proposed project and all others sources of emissions (including existing as well as other proposed source) to be carried out.

4.8 Risk Assessment, Disaster Management Plan, Occupational Health & Safety Plan, Environmental Management Plan, Post Study Monitoring Plan And Green Belt Development Plan.

Risk assessment will be carried out for fuel oil storage, transport and handling. Thermal radiation contours will be drawn and any mitigative measures required will be suggested. A Disaster Management Plan (DMP) for dealing with on-site and off-site emergency situations arising due to fire, explosion, leakages of hazardous substances, etc. in the plant is to be prepared.

Occupational risk involved during construction and operation of the plant should be assessed and necessary safety and protective measures should be spelt out.

An Environmental Management Plant (EMP) identifying the measures to mitigate the adverse impacts of emissions and effluents will be prepared covering construction and operational phases. It will also include a green belt development plan for the project site.

Considering the requirements of Regulatory Agencies and identified critical parameters, the consultant will design a post study environmental monitoring program and identify all equipment and man power necessary for the implementation of this program and cost involved.

5.0 TIME SCHEDULE

The total work including mobilisation of resources and submission of final deliverables for the complete scope of work is required to be completed within 18 months from the date of issue of the award letter. However, the consultant is required to submit a Draft EIA Report based on one season data for submission to State Pollution Control Board for Public Hearing, and revise the EIA Report after Public Hearing incorporating additional data generated to prepare a Comprehensive EIA Report for submission to MOEF&CC for Environmental Clearance.

6.0 ESTIMATED COST OF STUDY

The estimated cost of EIA/EMP Study is quoted on the basis of lump sum price for the entire study including documentation and presentations in meetings of MOEF&CC/ SPCB, if any. Due to highly varying nature of site (remoteness, accessibility, availability of infrastructural facilities etc.), varying nature of environment and varying nature of interactions required with MOEF&CC/ SPCB, it is not possible to make a bill of quantities estimate the cost of study. As per the prevailing estimates and rates quoted by consultants for recent thermal power projects, the study covering one year baseline data is estimated to cost Rs. 22.50 lakhs approx. (excluding GST).

Qualifying Requirements for Enlistment (Pre-qualification) of Consultants, for Environmental Impact Assessment Studies of Coal / Gas based Thermal Power Projects

Applicant who wishes to participate in the enlistment shall satisfactorily establish that it fulfills the qualifying requirements stipulated hereunder:

1.0 NABET / QCI Accreditation:

The consulting organization should be fully/provisionally accredited with National Accreditation Board of Education and Training (NABET) / Quality Council of India (QCI) for undertaking EIA Study of Category 'A' projects of Sector 1(d) – 'Thermal Power Plants' of EIA Notification dated 14.09.2006 of MOEF&CC at the time of submission of application for enlistment.

AND

2.0 EIA Studies:

The consulting organization should have completed at least one (01) Environmental Impact Assessment (EIA) Study for Thermal Sector (Category A) during preceding Five (05) years prior to the date of submission of application for enlistment based on TOR issued by MOEF&CC.

Completed EIA report means, an EIA Report based on TOR issued by MOEF&CC and submitted to MOEF&CC for environmental appraisal after Public Hearing, if applicable.

AND

3.0 Environment Clearance:

Based on the EIA report generated for Thermal Sector (Category A), the consulting organization should furnish evidence to the effect that at-least One (01) project has been accorded Environmental Clearance (EC) by Ministry of Environment, Forest and Climate Change (MoEF&CC).

AND

4.0 Business Turnover:

The average annual turnover of the consulting organization during preceding Three (3) financial years prior to the date of submission of application for enlistment, should not be less than INR 23 Lakh. However, if the audited financial data for last financial year is not available, the audited data for three latest consecutive preceding years may be taken.

ANNEXURES*

*****Note : Annexures are enclosed here for reference , the formats are provided in the online application form and need to be accordingly submitted in the application form.

Except Power of Attorney and Letter of Undertaking, no offline documents are to be submitted by Applicants.

Technical Information

SCHEDULE-1

NABET / QCI Accreditation

We declare that we are Fully / Provisionally (strikeout whichever is not applicable) accredited with National Accreditation Board of Education and Training (NABET) / Quality Council of India (QCI) for undertaking EIA study of **category 'A'** projects of Sector 1(d)- 'Thermal Power Plants' of EIA Notification dated 14.09.2006 of MOEF&CC.

(Tick (✓) Whichever is applicable)	
A copy of the Accreditation Certificate is attached herewith for ready reference.	
Since QCI/NABET Certificate has not been issued till date a copy of document as issued QCI/ NABET supporting the Accreditation is attached herewith for ready reference	

SCHEDULE-2

Experience Details of EIA Studies

In support of meeting the qualifying requirements stipulated at para 2.0 of qualifying requirements stipulated at Annexure- I of Enlistment documents, we hereby confirm that we have completed following Environmental Impact Assessment (EIA) for Thermal Sector (**Category 'A'**) undertaken by us during the **preceding five (05) years prior to the date of submission of application for enlistment**.

(We have enclosed copy of Work order/LOA and Certificate from Owners / Clients in support of Works executed)

A. Reference Work - 1

Particulars	**Details of Reference Work**	**Supporting documents enclosed (Yes/No)**
Name of the Project and Capacity for which EIA has been conducted		
Client		
Category of Project		
Date of Start of EIA		
Date of Completion of EIA		
Whether submitted to MOEF & CC for Environmental appraisal after public hearing, if applicable.	Yes/ No*	

**** Strike off whichever is not applicable.***

B. Reference Work – 2

Particulars	**Details of Reference Work**	**Supporting documents enclosed (Yes/No)**
Name of the Project and Capacity for which EIA has been conducted		
Client		
Category of Project		
Date of Start of EIA		
Date of Completion of EIA		
Whether submitted to MOEF & CC for Environmental appraisal after public hearing, if applicable.	Yes/ No*	

****Strike off whichever is not applicable.***

C. <u>Reference Work – 3</u>

Particulars	**Details of Reference Work**	**Supporting documents enclosed (Yes/No)**
Name of the Project and Capacity for which EIA has been conducted		
Client		
Category of Project		
Date of Start of EIA		
Date of Completion of EIA		
Whether submitted to MOEF & CC for Environmental appraisal after public hearing, if applicable.	Yes/ No*	

**** Strike off whichever is not applicable.***

<u>Note</u>:

*i) Applicants are not permitted to quote more than **Three (3)** reference works.*

ii) Applicants to enclose client certificate/ supporting documents duly certified by owners for the works executed (EIA Studies Conducted) clearly indicating the above mentioned particulars.

iii) Applicants to enclose copy of Work order/LOA in support of Works executed.

SCHEDULE-3

Environment Clearance

Dear Sir,

Based on the EIA report generated by us for Thermal Sector **(Category A)**, following projects have been accorded Environmental Clearance (EC) by Ministry of Environment, Forests & Climate Change (MOEF&CC):

Sl. No.	Name of the Project and Capacity for which EC accorded	Details of EIA Conducted			Date of Accord of Environmental Clearance by MOEF&CC
		Rapid/ Comprehensive	Associates, if any	Date of Submission to MOEF&CC	
1.					
2.					
3.					

Note:

*i) Applicants are not permitted to quote more than **three (3)** reference works.*
ii) Applicants to enclose copy of Environmental Clearance Letters.
iii) Applicants to enclose copy of Work order/LOA.

Any information / data furnished by the applicant found to be incorrect or false or misleading at any point of time would render him liable to be debarred from the Enlistment / tendering / taking up of work in NT

Financial Information

SCHEDULE-4

Average Annual Turnover

Dear Sir,

The average annual turnover during preceding three (3) years is as under (copy of Audited Annual Reports are enclosed)

Sl. No.	Year	ANNUAL TURNOVER (in INR)
a.	**2020-21**	
b.	**2021-22**	
c.	**2022-23***	
d.	**Average Annual Turn Over**	

Note:

1. **In case Audited Annual Report for the Financial Year 2022-23 is not available, certification of financial statements from a practicing Chartered Accountant shall also be considered acceptable.*
2. *In case of Proprietorship / Partnership Firm, Audited Annual Reports / Financial statements certified by a practicing Chartered Accountant (as applicable) may be submitted.*

Additional Information

SCHEDULE-5
Page 1 of 1

1) We have read the contents of the Banning Policy of NTPC attached with this Application Document and agree to abide by this policy. Further, in terms of requirement under Banning policy we hereby declare the following:

   a) We have not been Banned/Blacklisted as on date of submission of application for subject enlistment by Ministry of Power or Government of India.

   b) We have not employed any public servant dismissed/removed or person convicted for an offence involving corruption or abetment of such offences.

   c) Our Director(s)/Owner(s)/Proprietor/Partner(s) have not been convicted by any court of law for offences involving corrupt and fraudulent practices including moral turpitude in relation to business dealings with Government of India or NTPC or NTPC's group companies during the last five years.

2) We further declare as under:

   that if at any point subsequent to Enlistment, the declarations given above are found to be incorrect, NTPC Limited shall have the full right to terminate the Enlistment and take any action as per applicable laws.