Executive Summary

For

Expansion of 1x270 MW thermal power project by addition of 2x175 MW coal based thermal power plant by M/s. Ideal Energy Projects Limited

At

Village Khursapar, Kinhala, near village Bela, Taluka Umred, District Nagpur, Maharashtra.

[Category 'A' of section 1(d) - Thermal Power Plants (> 500 MW - coal based) of the Schedule in the Environment Impact Assessment (EIA) Notification 2006, and its subsequent amendments.]

Project Proponent

Ideal Energy Projects Limited (IEPL)

Environmental Consultant:

Pollution and Ecology Control Services

Near Dhantoli Police Station, Dhantoli, Nagpur

Email: pecsnagpur@gmail.com

Accreditation no.:NABET/EIA/25-2825/RA0474

Valid upto 16th October 2028

EXECUTIVE SUMMARY

1.0 INTRODUCTION

Ideal Energy Projects Limited (IEPL) has proposed expansion of 2x175 MW coal-based power plant at village Khursapar, Kinhala, near village Bela, Taluka Umred, District Nagpur, Maharashtra. The proposed expansion project falls under Category 'A' of section 1(d) - Thermal Power Plants (> 500 MW - coal based) of the Schedule in the Environment Impact Assessment (EIA) Notification 2006, and its subsequent amendments. Therefore, it requires Environmental Clearance (EC) from the Ministry of Environment, Forest, and Climate Change (MoEF&CC), New Delhi.

The project was granted the Terms of Reference (ToR) vide ToR File No.: J-13012/06/2025-IA.I(T) dated 22/09/2025 by the MoEF&CC, New Delhi.

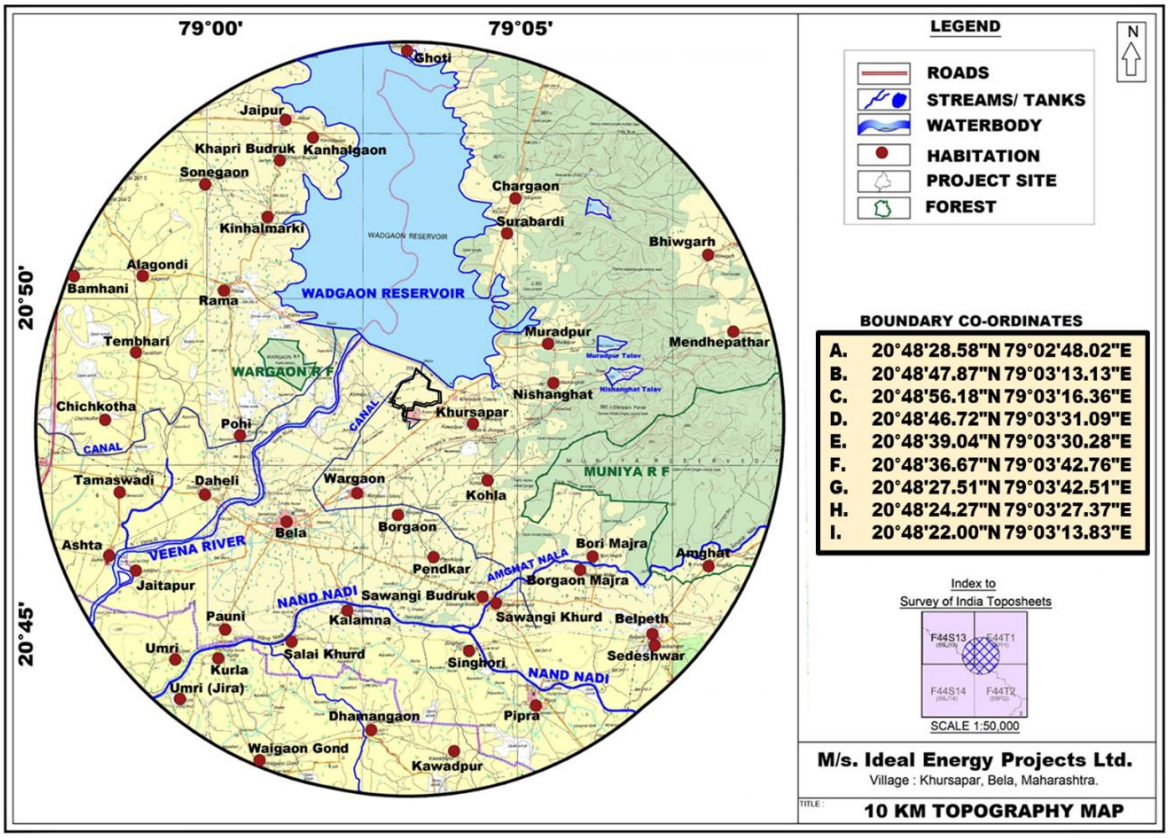
2.0 PROJECT DETAILS

The present project proposes the expansion (phase II) of 2x175 MW coal-based power plant to the existing 1x270 MW power plant at village Khursapar, Kinhala, near village Bela, Taluka Umred, District Nagpur, Maharashtra.

The proposed expansion project shall be constructed on the existing plant area, a private land having total area of 101 hectares, that is owned by IEPL. The capital cost of the proposed expansion project based on the prevailing market rates is estimated at Rs. 2400 crores.

The existing (phase I) 1x270 MW of Pulverized Fuel (PF) fired boiler using coal, was granted EC by the State EIA Authority (SEIAA), Maharashtra vide letter dated 15/05/2009. Thereafter, corrigendum to the EC for modification in the EC condition was accorded on 27/11/2009. Project has been implemented and the units are under operation.

Consent to Operate (CTO) for the existing unit was accorded by Maharashtra State Pollution Control Board (SPCB) vide letter. No. MPCBCONSENT-0000178101/CR/2312000892 dated 08/12/2023. The validity of CTO is up to 31/08/2026.



Source: *Survey of India (SOI) Toposheet*

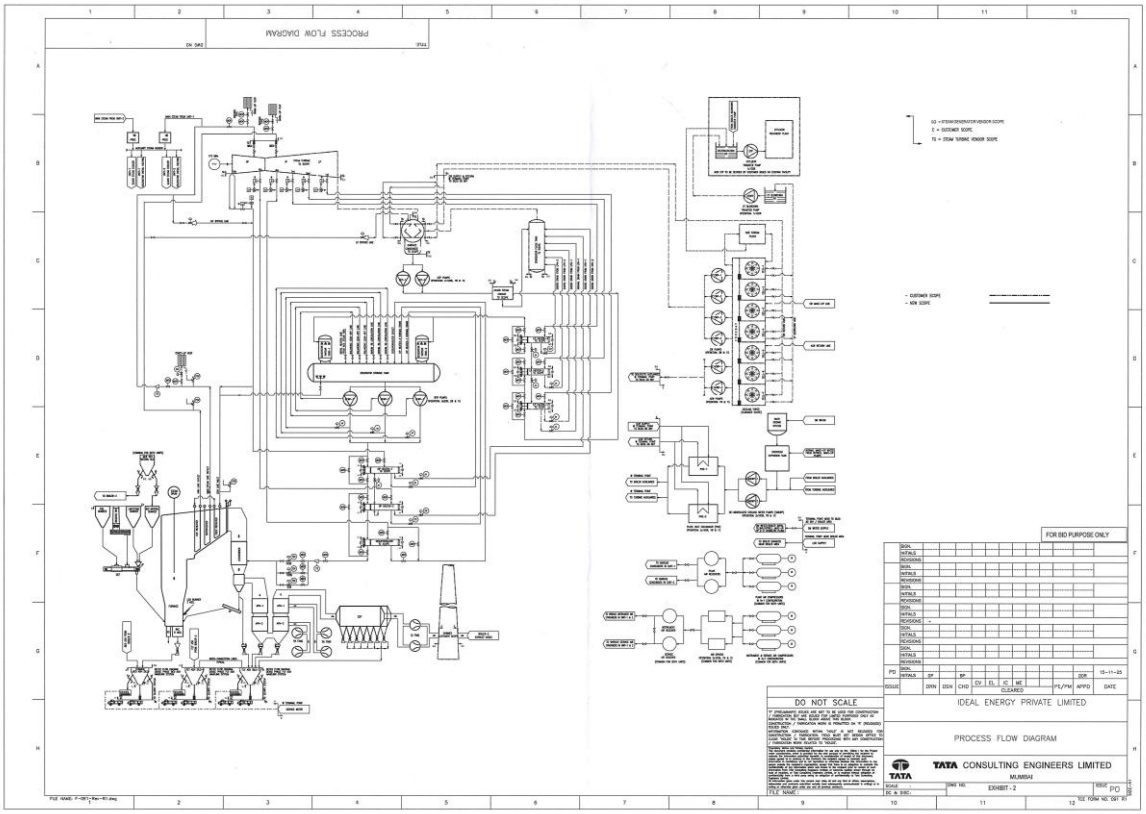
Topographical map (10Km radius)

Site Photographs

Project At a Glance

Sr. no.	Particular	Details
1	Project name	Proposed expansion of 350 (2x175) MW coal-based plant at village Khursapar, Kinhala, near village Bela, Taluka Umred, District Nagpur, Maharashtra.
2	Project size	350 (2x175) MW
3	Project sector & category	1(d) Thermal Power Plants & Category "A"
4	Project Categorisation as per MoEF&CC notification dated 11.07.2025	The project falls under "C category" as per the MoEF&CC notification dated 11th July 2025, in respect to the Thermal Power Plant (TPP). The detailed justification is given below: - • The proposed project does not fall within 10 km radius of NCR. There is no 'million plus population city' within 10 km radius of the project. • The project does not fall within 10 km radius of CPA and non-attainment city.
5	Land requirement	Total 101 Ha of land is available for both existing and proposed plant.
6	Greenbelt	Total area of 37.60 ha area will be developed as greenbelt. A 10m wide greenbelt, consisting of at least 3 tiers around plant boundary will be developed as greenbelt and green cover as per CPCB guidelines. Local and native species will be planted with a density of 2500 trees per hectare.
7	Technology	CFBC Sub-critical CFPP
8	Fuel requirement	Coal: 4040 TPD i.e. 1.33 MMT Per Year. Biomass: 940 TPD i.e. 0.31 MMT Per Year.
9	Source of fuel	Coal: SHAKTI scheme via railway and trucks. Biomass: a. Bagasse from Manas Agro Plant b. Briquettes via trucks.
10	Ash generation	Fly ash and bottom ash : 4,75,002 TPA
11	Project cost	Proposed project cost: Rs. 2400 crores
12	Water requirement	25,855 m^3/day
13	Water source	Wadgaon dam and recycled ETP water.
14	Manpower	560 (380-Permanent. 180-Contractual).

3.0 PROCESS DESCRIPTION



Process Flow Diagram

4.0 DESCRIPTION OF ENVIRONMENT

The baseline environmental quality of air, water, soil, noise, socio-economic status, and ecology has been assessed during the period of 1st November 2025 to 31st January 2026 in the study area of project site.

Air Environment

Total 10 samples were collected and analysed, and their results are summarized below:

- PM_{10}: 42.4 µg/m^3 to 64.6 µg/m^3.
- $PM_{2.5}$: 17.4 µg/m^3 to 29.8 µg/m^3.
- SO_2: 14.4 µg/m^3 to 28.4 µg/m^3.
- NO_2: 17.7 µg/m^3 to 32.3 µg/m^3.
- CO and other: The concentrations are Below Detection Level (BDL).

The concentrations of PM_{10}, $PM_{2.5}$, SO_2 and NO_2 were found within the National Ambient Air Quality Standards (NAAQ).

Water Environment

A total 16 samples including eight surface & eight ground water samples were collected and analyzed. The water samples were analyzed as per Standard Methods for Analysis of Water and Wastewater, American Public Health Association (APHA) Publication.

The data indicates that the ground water as well as the surface water quality are below the stipulated standard for drinking water (IS 10500 – 2012).

Noise Environment

Noise levels measured eight stations are within limit of 55.0 dB (A) for Residential Area or 75.0 dB (A) for Industrial Area as given in MoEF Gazette notification for National Ambient Noise Level Standard.

Land Environment

The characteristics of the soil sample was analysed at eight stations. Samples collected from different land use classifications indicating the soil Sample were neutral in nature. All the major nutrients were present, namely, nitrogen's presence is sufficient in quantity, phosphorus is less in quantity and potassium is in sufficient quantity. The soil analysis report indicates that the soil in the area is capable of supporting plant growth.

Biological Environment

There are two patches of reserved forest in 10 Km study area of project. All the mitigation will be taken in the proposed power plant to minimise the impact on forest patches.

Socio Economic Environment

The socio-economic profile of the study area (10 km radius around the project site of Ideal Energy Projects Limited at Village Khursapar/ Kinhala near Bela, Taluka Umred, District Nagpur, Maharashtra) has been assessed based on Census 2011 data, field surveys, and secondary sources. The analysis helps in understanding the demographic

structure, occupational pattern, infrastructure availability, and economic conditions of the surrounding population. The study area comprises 42 villages of Khursapar, Kinhala, near village Bela, Taluka Umred, District Nagpur, Maharashtra. Agriculture and daily wages working are the major source of income for the people.

5.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES.

The air emissions from the power plant are as follows:

(a) Dust particulates from fly ash

(b) Sulphur dioxide (SO_2) in flue gas

(c) Nitrogen oxides (NO_x) in flue gas

(d) Coal dust particles due to handling of coal

(e) Fly ash dust particles from ash silos

(f) Mercury in flue gas

SULPHUR DIOXIDE (SO_2) IN FLUE GAS

As per the Indian norms, emission of Sulphur dioxide is to be within 100 mg/Nm3. Based on the coal analysis, the maximum Sulphur content is 0.6%, the requirement of limestone injection to capture the Sulphur in excess of statutory stipulation to be implemented as recommended by the OEM if required.

NITROGEN OXIDES (NO_X) IN FLUE GAS

CFBC boilers are extremely flexible, allowing a wide range of fuel qualities and sizes to be burnt. In CFBC Boiler technology, emissions of SO_2 and NOx are significantly reduced. This is because the combustion temperature in a CFBC boiler (800–900ºC) is significantly lower than in a PCC boiler (1300–1700ºC), which results in considerably reduced NOx formation. However, to limit the emissions within the stringent emission regulation of 100 mg/N cum, the requirement of SNCR will be as per OEM recommendations if required.

COAL DUST PARTICLES DUE TO HANDLING OF COAL

Generally, coal dust would be generated at the conveyor transfer points, coal unloading area and coal stockpile area. Hence, coal transfer points would be provided with dust suppression facility. Further, to arrest the coal dust generation, the conveyor would be provided with open gallery with closed hood for conveyors. The bottom

portion of all the conveyor galleries would be provided with seal plates within the power plant area and at road crossings.

Bunker ventilation system would also be provided for the coal bunkers to evacuate dust and hazardous gases like Methane from the coal bunkers. Collected dust would be returned to the coal bunkers.

FLY ASH DUST PARTICLES FROM ASH SILOS AND ASH DISPOSAL AREA

Fly ash evacuated from the ESP and other dust collecting hoppers would be transported in closed pipelines by pneumatic means. At the time of unloading fly ash to the silos, some ash laden air would get vented out. To restrict the fly ash dust particles, a vent filter would be installed on top of each of the fly ash silos at the vents. Utilization of fly ash in dry form is envisaged and closed trucks would be used for this purpose to the maximum extent possible. Only during emergency, fly ash from proposed units will be conveyed to the existing fly ash silos in pneumatic mode. From these silos, ash would be disposed-off in slurry form to the existing ash pond. Alternately, an outlet is given below the proposed fly ash silos to convey the ash to future slurry disposal system.

MERCURY IN FLUE GAS

As per the latest norms emission of Mercury in flue gas to be limit to 0.03 mg/N cum. However, mercury is not present in coal analysis hence, its abatement is not envisaged.

Stack Emissions: Flue gas exiting into the atmosphere would be monitored for PM, CO, NO_2, SO_2 and Opacity. For this purpose, dilution probes, associated gas analysers and support equipment, sample lines and Opacity sensor/ transmitters would be installed. The Opacity sensors would be equipped with a blower to protect the optics from coating by flue gas particles.

Impact on Water Quality

Company will adopt following mitigation measures for minimizing impact on water quality

- Water withdrawal will strictly comply with the approved allocation from the competent authority.
- Adoption of closed-cycle cooling system to minimize freshwater consumption.

- Maximization of condensate recovery and reuse within the plant.
- Recycling and reuse of treated wastewater for ash handling, dust suppression, and greenbelt development.
- Effluent Treatment Plant (ETP) and Sewage Treatment Plant (STP) will be provided.
- Treated effluent will be reused to the maximum extent possible.
- No untreated wastewater will be discharged into natural water bodies.
- Separate stormwater and effluent drainage systems will be maintained.

Noise Environment

All the equipment in the power plant would be designed/ operated to have the noise level not exceeding 85 - 90 dB (A) measured at 1.5 m from the equipment. Also, all the measures would be taken to limit the noise levels at the plant boundary within the stipulated limits.

For mills (limestone) and crushers, the noise level at 1.5m from the equipment shall be restricted to 90 dB(A). All measures would be taken to limit the noise levels at the plant boundary within the stipulated limits.

Solid Waste

The major waste generated is ash from the burning of coal and biomass. Fly ash (80%) from coal combustion is 3,63,528 TPA under existing conditions and is proposed to be 3,62,630 TPA. Bottom ash (20%) from coal burning is 90,882 TPA currently and is expected to be 90,658 TPA in the proposed scenario. Additionally, ash from biomass combustion, which is currently nil, is projected to be 21,714 TPA (Fly ash: 17371 TPA & Bottom Ash 4343 TPA). Thus, the total ash generated (maximum 34% of coal plus ash from biomass) increases from 4,54,410 TPA to 4,75,002 TPA. Fly ash will be supplied to cement manufacturers as per the attached MoU. Bottom ash, along with gypsum, will be utilized for land filling and mine void filling with the required NOC from MPCB (**Annexure XIX**). Furthermore, gypsum generated and stored with bed ash, which is currently nil, is expected to be 35,640 TPA in the proposed project.

With the implementation of proper ash utilization practices, secure storage, and regulatory-compliant waste management systems, the environmental impacts

associated with solid waste generation from the Ideal Energy Projects Limited power plant expansion will remain minimal and manageable.

Impact on Terrestrial Ecology

The terrestrial ecology of the study area comprises agricultural fields, scattered trees, scrub vegetation, and village settlements. The baseline survey indicates the presence of commonly occurring plant species and faunal species typical of the rural landscape of Nagpur district. No rare, endangered, or endemic flora and fauna were recorded within the core project area.

6.0 ENVIRONMENTAL MONITORING PROGRAMME

Environmental monitoring refers to systematic sampling of air, water, soil, and biota in order to observe and study the environment, as well as to derive knowledge from this process. One of the objectives of Environmental Monitoring is to monitor the performance of a project and the effectiveness of mitigation measures. The environmental monitoring is important to assess performance of pollution control equipment that would be installed in the proposed project of IEPL. The sampling and analysis of environmental attributes including monitoring locations will be as per the guidelines of the Central Pollution Control Board / State Pollution Control Board.

7.0 ADDITIONAL STUDIES

The additional studies as per the ToR issued by MoEF&CC are Social Impact Assessment, Risk Assessment, & Disaster Management Plan are included in draft EIA report.

8.0 PROJECT BENEFITS

Increased economic activity in the area will support the growth of ancillary businesses such as transportation, maintenance services, small vendors, and local markets. Through its CER/ CSR initiatives, the company proposes to undertake need-based community development programs focusing on education, healthcare, drinking water supply, sanitation, and skill development, which will enhance the quality of life of nearby villages. Improvement in infrastructure such as infrastructure, communication, and utilities due to project development will further stimulate regional development.

Overall, the project is anticipated to have a positive and long-term socio-economic impact on the local population

Corporate Environment Responsibility (CER)

For the social development in the area, the company has planned various infrastructural development of the area. Time to time the proponent will also organize various camps and provide the facilities to nearby villages as per their requirements. Approximately Rs. 20 crore will be spent under CER.

9.0 ENVIRONMENTAL MANAGEMENT PLAN

The management of the IEPL shall take all the necessary steps to control and mitigate the environmental pollution arising out of the proposed activities at the designing stage of the project itself. This environmental management plan includes all the elements of environment pollution controlling systems proposed by the project proponent in both construction and operation phase.

After commissioning of the proposed expansion project, IEPL is going to follow all the measures as per EMP in the plant premises that will results in the further improvement in the environmental quality and all the parameters will be maintained within the prescribed limits.

Budget for Implementation of Environmental Management Plan

S. No.	Environmental Component	Capital Cost (Rs. Cr.)	Recurring Cost (Rs. Cr./Year)
1	Air pollution control systems (ESP, SNCR, stack, dust suppression, dry fog system, wind breaking wall)	153	12.5
2	Water & wastewater management systems (ETP, STP, sewerage system and Laboratory)	20.00	1.75
3.	Rainwater Harvesting	2.0	0.15
3	Solid waste management systems (Ash handling system, ash disposal civil works)	80.00	6.4
4	Green belt development & afforestation	2.50	0.2
5	Environmental monitoring systems & laboratory facilities (CAAQMS, CEMS, stack monitoring, manpower)	3.00	0.25
6.	Occupation health and Safety Budget	7.00	0.6
—	**Total EMP Cost**	**267.5**	**21.85**

10.0 CONCLUSION

The Environmental Impact Assessment study for the proposed project of **Ideal Energy Projects Limited** indicates that the anticipated environmental impacts during construction and operation phases will be minimal and manageable with the implementation of the proposed mitigation measures and Environmental Management Plan (EMP). Adequate pollution control systems, efficient water management, solid waste management, and greenbelt development have been incorporated in the project design. The project will also contribute to local and regional socio-economic development through employment generation and infrastructure improvement.