



**Government of India**  
**Ministry of Environment, Forest and Climate Change**  
**IA Division**  
**(Thermal Projects)**  
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**Minutes of 5th meeting Thermal Projects held from 14/02/2024 to 14/02/2024**

**Date:** 26/02/2024

**MoM ID:** EC/MOM/EAC/782824/2/2024  
**Agenda ID:** EC/AGENDA/EAC/782824/2/2024  
**Meeting Venue:** N/A  
**Meeting Mode:** Virtual  
**Date & Time:**

14/02/2024	02:30 PM	05:30 PM
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**1. Opening remarks**

The 5th Meeting of the EAC (Thermal Power) organized by the Ministry of environment, Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi was held on 14th February 2024 in Online Mode, Indira Paryavaran Bhawan (MoEF&CC) under the Chairmanship of Dr. Sharad Singh Negi. The list of Members participated in the meeting is at Annexure I. Note - Due to Editor issue, Final Approved Minutes of the EAC is enclosed herewith in PDF as a [ANNEXURE]. Please refer this document and Treat as approved Minutes of the EAC [Thermal Sector]

**2. Confirmation of the minutes of previous meeting**

The Minutes of the 4th EAC (Thermal Power) meeting held on 18th January 2024 were confirmed in the meeting.

**3. Details of proposals considered by the committee**

**Day 1 -14/02/2024**

**3.1. Agenda Item No 1:**

**3.1.1. Details of the proposal**

**Proposed Expansion of Bandhaura Thermal Power Plant under Phase-III by adding 1600 (2x800) MW Ultra Super Critical TPP to Existing 2800 (1200+1600) MW Ph-I & Ph-II within the existing plant boundary of Thermal Power Plant at District Singrauli, Madhya Pradesh by Mahan Energen Limited (MEL) by MAHAN ENERGEN LIMITED located at SINGRAULI, MADHYA PRADESH**

<b>Proposal For</b>		Fresh ToR	
<b>Proposal No</b>	<b>File No</b>	<b>Submission Date</b>	<b>Activity (Schedule Item)</b>

<a href="#">IA/MP/THE/456997/2024</a>	J-13011/56/2006-IA.II(T)	23/01/2024	Thermal Power Plants (1(d))
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### 3.1.2. Project Salient Features

The proposal is for grant of Terms of Reference (ToR) to the project for Expansion of Bandhaura Thermal Power Plant under Phase-III by adding 1600 (2x800) MW Ultra Super Critical TPP to Existing 2800 (1200+1600) MW Ph-I & Ph-II in an area of 1170 Acres within the existing plant boundary at District Singrauli, Madhya Pradesh by M/s Mahan Energen Limited.

**5.3.2** The Project Proponent and the accredited Consultant “Gaurang Environmental Solutions Pvt. Ltd” (Accreditation valid till: 07/03/2024) made a detailed presentation on the salient features of the project and informed that:

1. M/s Mahan Energen Limited (MEL) proposes to set up an Ultra Super-Critical Thermal Power Project, under Phase-III expansion, with configuration of two units of 800 MW. The proposed project is envisaged as an expansion of the existing Phase-I 1200 (2x600) MW capacity & under construction Phase-II 1600 (2x800) MW capacity within the existing boundary of MEL catering total capacity of 4400 MW.

1. The salient features of the project are as follows:

- **Project details:**

Location	At Villages Bandhaura, Khairahi, Karsualal and Nagwa in District Singrauli, Madhya Pradesh
Company's Name	Mahan Energen Limited
Accredited Consultant and certificate no.	Gaurang Environmental Solutions Pvt. Ltd. Address: #102, SNG Shri Ratna Apartment, Peetal Factory, Jhotwara Road, Jaipur- 302016 NABET Accreditation No.: NABET/EIA/2023/SA 0203
Inter-state issue involved	No
Seismic Zone	Zone-III as per IS 1893.

- **Category details:**

Category of the project	Category 'A' of Sector 1(d) - Thermal Power Plants - ( $\geq 500$ MW (coal / lignite / naphtha & gas based))								
Capacity	<table><tr><td>Existing</td><td>Expansion</td><td>Total</td></tr><tr><td>2800 MW (1200+1600) MW</td><td>1600 MW (2 x800) MW</td><td>4400 MW (2800+1600) MW</td></tr></table>			Existing	Expansion	Total	2800 MW (1200+1600) MW	1600 MW (2 x800) MW	4400 MW (2800+1600) MW
Existing	Expansion	Total							
2800 MW (1200+1600) MW	1600 MW (2 x800) MW	4400 MW (2800+1600) MW							

Attracts the General Conditions (Yes/No)	No
Additional information (if any)	The land is already under possession with Mahan Energen Ltd.

• **Project Description:**

If expansion, the details of ECs (including amendments and extension of validity) of existing Unit s etc.	<ul style="list-style-type: none"> <li>Environmental Clearance granted by MoEFCC vide F. No. J-13011/56/2006-IA.II (T), dated: 27.07.2023 for Expansion of Bandhaura Thermal Power Plant, 1600 (2x800) MW Ultra Super Critical under Phase-II to Bandhaura Thermal Power Plant at Singrauli District, Madhya Pradesh.</li> <li>Environmental Clearance granted by MoEFCC vide File no. J- 13011/56/2006-IA.II (T) dated 20.04.2007 to Bandhaura Super Thermal Power Project (4x500) MW at Singrauli District, Madhya Pradesh.</li> <li>Subsequently, amendments were granted on 10.02.2009, 23.08.2013, and 08.04.2016 for setting up the existing 1200 (2x600) MW units.</li> <li>Further, transferred EC from EPMP to MEL was granted on 15.09.2022 by MoEF&amp;CC.</li> </ul>
Amendments granted, if Yes details	<ul style="list-style-type: none"> <li>Amendments were granted on 10.02.2009, 23.08.2013, and 08.04.2016 for setting up the existing 1200 (2x600) MW units.</li> <li>Further, transferred EC from EPMP to MEL was granted on 15.09.2022 by MoEF&amp;CC.</li> </ul>
Expansion / Green Field (new):	Expansion (IPP)
If expansion, the date of latest monitoring done by the Regional Office (R.O) of MoEF&CC for compliance of the conditions stipulated in the environmental and CRZ clearances of the previous phases. A certified copy of the latest R.O. monitoring report shall also be submitted.	<p>Six-Monthly EC compliance report for Phase-I (April'2023 to September'2023) submitted to MoEF&amp;CC, CPCB and MPPCB IRO, Bhopal vide letter number APL/Mahan/EMD/EC/MoEFCC/245/11/23 dated 27.11.2023.</p> <p>Certified EC compliance report- EC compliance has been certified by Integrated Regional Office of MoEF&amp;CC, Bhopal vide File no. 4(0)-1/2022(ENV.) dated: 02.09.2022 and Updated EC Compliance Status w.r.t non/partial Complied points vide no. 4(0)-1/2022(Env.) 1/40692/2023 dated: 11.04.2023.</p>
Co-ordinates of all four corners OF TPP Site:	
Average height of: TPP site, ash pond site etc. above MSL	<p>TPP Site: 338 m above MSL</p> <p>Ash Dyke: 338 m above MSL</p>
Whether the project is in the Critically Polluted Area (CPA) or within 10 km of CPA. If so, the details thereof:	The project area of MEL or within 10 km of CPA does not fall under any CPCB Certified Critically or Severely Polluted Areas as mentioned in O.M no. J11013/5/2010-IA.II(I) dt: 13.01.2010 and its subsequent amendments of MoEF&CC. MEL is around 35 km away from Waidhan Head Quarter.
CRZ Clearance	Not Applicable

Cost of the Project (As per EC and revised): Cost of the proposed activity in the amendment:	Proposed Expansion (2x800) MW is Rs.13,863 Crores			
Employment Potential for entire project/plant and employment potential for the proposed amendment (specify number of persons and quantitative information).	<b>During Construction Phase</b>			
	Permanent Employment			
	No. of Permanent Employment [A]			300
	Period of Employment (No. of Days) [B]			1560
	No. of Man Days [X] = [A] + [B]			468000
	Temporary Employment			
	Temporary / Contractual Employment (No. of Man Days) [Y]			1872000
	Total [X] +[Y]			2340000
	<b>During Operation Phase</b>			
	During Operation Phase	Existing	Proposed	Total
	No. of Permanent Employment (Nos) [A]	514	300	814
	Period of Employment [B]	21000	10500	31500
	No. of Man Days [X] = [A] +[B]	10794000	3150000	25641000
	Temporary / Contractual Employment (no. of Man Days)	5250000	2625000	7875000
	Total [X] +[Y]	16044000	5775000	33516000
Benefits of the project (specify quantitative information)	<p>The proposed expansion of Project will improve the power supply in the state as well as in India, which is a vital for economic growth as well as improving the quality of Life.</p> <ul style="list-style-type: none"> <li>• Infrastructure development.</li> <li>• Direct &amp; indirect employment opportunity</li> <li>• Revenue generation to central &amp; state government.</li> <li>• Trickle-down effect of enhance profitability to the local populace</li> <li>• Skill development and capacity building like vocational training, income generation programmes and entrepreneurship development program Awareness programme and community activities, like health camps, medical aides, family welfare camps, sanitization/ cleanliness awareness programme, immunization camps</li> </ul>			

p, sports & cultural activities, plantation, etc. Awareness about water borne diseases and pandemic diseases etc. will be done to local villagers. The project will also attract the high-income groups to invest in the region and thus bring about economic growth of the region.

• **Electricity generation capacity:**

Capacity & Unit Configurations:	1600 MW, Configured as 2x800 MW
Generation of Electricity Annually	1600 MWh

• **Details of fuel and Ash disposal**

Fuel to be used:	Coal and Auxiliary Fuel
Quantity of Fuel required per Annum:	For the Proposed Power Project of 1600 MW, the annual fuel requirement is estimated at 6.0 - 7.0 million MTPA at 85% plant load factor with Design Coal GCV of 3000-4200 K Cal/kg. Auxiliary liquid fuels, viz. LDO/HSD requirement per annum: 6000 kilo litres.
Coal Linkage / Coal Block: (If Block allotted, status of EC & FC of the Block)	Coal from nearby Commercial Coal Mines.
Details of mode of transportation of coal from coal source to the plant premises along with distances	Coal shall be received at plant through Conveyor Belt System from nearest Mine/Railway Siding.
Fly Ash Disposal System Proposed	Fly ash will be collected in dry form for utilization while bottom ash will be collected in wet form. There would be provision for dry disposal of fly ash from storage silos to closed tankers for utilization in mine reclamation, road construction, aggregate replacement in concrete, for manufacturing bricks, cement, road construction etc. as per Fly Ash Notification, 31st December'2021 and amendments. Provision would be kept for HCSD disposal of both bottom and fly ash to ash pond in case of exigency. In this case, both bottom ash and fly ash will be disposed through HCSD system to the proposed ash dyke.
Ash Pond/ Dyke (Area, Location & Coordinates) Average height of area above MSL (m)	Ash Dyke Area: 232 Acres Height : 338 m above MSL  Point A – Latitude - 23°59'48.41"N Longitude - 82°24'55.73"E  Point B – Latitude - 23°59'40.46"N Longitude - 82°24'37.77"E  Point C – Latitude - 23° 59'32.35"N



	<p>Longitude - 82°24'55.88"E</p> <p>Point D – Latitude - 23°59'21.15"N</p> <p>Longitude - 82°24'35.98"E</p>
Quantity of Fly Ash to be generated Bottom Ash to be generated	<p>Ash (Fly Ash &amp; Bottom Ash): 3.83 MTPA</p> <p>Fly ash: 3.064 MTPA</p> <p>Bottom ash: 0.766 MTPA</p>
Fly Ash utilization (details)	<p>Ash Management Plan will be developed and implemented for achieving 100 % utilization.</p> <p>Ash will be used for reclamation of abandoned mine, manufacturing bricks, cement, road construction, aggregate replacement in concrete, etc. as per Fly Ash Notification, 31st December'2021 and amendments.</p>
Stack Height (m) & Type of Flue	120 m & Bi flues with FGD and low NOx.

• **Water Requirement:**

Source of Water:	Rihand (GovindVallabh Pant Sagar) Reservoir located at a distance of 36 km by existing water pipeline.
Quantity of water requirement:	3260m <sup>3</sup> /hr or 28.55 MCM/year
Distance of source of water from Plant:	Approx. 36 Km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	No
Mode of conveyance of water:	Existing Pipelines
Status of water linkage:	The water allocation for proposed expansion is 28.55 MCM will be obtained from Rihand Reservoir.
(If source is Sea water) Desalination Plant Capacity	Not Applicable
Mode / Management of Brine:	Not Applicable
Cooling system	Re-circulating cooling water system using induced Draft cooling towers will be deployed for the proposed extension units.

• **Land Area Breakup:**

Land Requirement:	Sr. N	Description	Land Utilization (Acre s)
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TPP Site	o.	In-Plant Facility	2x600 MW (Ph1)	2x800 MW (Ph2)	2x800 MW (Ph3)
Ash Pond					
Township					
Railway Siding & Others	A	BTG (including FGD (Ph II), Switchyard, Transformer yard etc.			
Raw Water Reservoir					
Green Belt	i		45	61	61
others	ii	Coal & Ash Facility (Including Stock yard & AHP facility)	95	15	7
Total (if expansion state additional land requirement)	iii	Water System (Including, Cooling Tower, CW Pump house, DM Water System, Clarified, Industrial Waste water Treatment facility)	30	68	25
	iv	Ash dyke	142	90	...
	ii	Misc. Facility (Including Plant road/boundary road, Misc Building, etc)	51		12
		Total Project Area	702		
	B.	Green Belt (40%)	468		
		Grand Total (A+B)	1170 (473.48 Ha.)		
Status of Land Acquisition:	The land is already under possession with Mahan Energen Limited. The total land area is 473.48 Ha. including the existing facility.				
Status of the project:	<p>Phase I : 1200 (2x600) MW is commissioned and operational. Unit-1 of the Power Station is operational from 24.02.2013 and Unit – 2 from 18.07.2016.</p> <p>Phase II : EC is granted by MoEFCC on dated 27.07.2023 for 1600 (2x800) MW and the plant is under construction.</p>				
Break-Up of land-use of TPP site:	It is an expansion project, The land is already in possession with Mahan Energen Limited, Bandhaura TPP. The total land area 473.48 Ha. (1170 Acres) including the existing facility.				
Total land required for project components	Hence, the site doesn't involve any forest land, national park/ wildlife sanctuary/ biosphere reserve /tiger reserve/ elephant reserve in the study area & does not fall under coastal zone.				
Private land					
Government land					
Forest Land					
• Presence of Environmentally Sensitive areas in the study area					

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter/Remarks																											
Reserve Forest/Protected Forest Land	Yes <table border="1"> <thead> <tr> <th colspan="3">Forests</th> </tr> <tr> <th>Name</th><th>Distance (km)</th><th>Direction</th></tr> </thead> <tbody> <tr> <td>Open mixed jungle</td><td>3.7</td><td>NE</td></tr> <tr> <td>Mohaban RF</td><td>Adjacent</td><td>W, S W, S</td></tr> <tr> <td>Vihara PF</td><td>10.5</td><td>NE</td></tr> <tr> <td>Pidarwah PF</td><td>7.6</td><td>N</td></tr> <tr> <td>Mohaban RF</td><td>0.42</td><td>NNW</td></tr> <tr> <td>Open mixed jungle</td><td>9.2</td><td>NE</td></tr> <tr> <td>Fairly Dense Jungle</td><td>13.5</td><td>SE</td></tr> </tbody> </table>	Forests			Name	Distance (km)	Direction	Open mixed jungle	3.7	NE	Mohaban RF	Adjacent	W, S W, S	Vihara PF	10.5	NE	Pidarwah PF	7.6	N	Mohaban RF	0.42	NNW	Open mixed jungle	9.2	NE	Fairly Dense Jungle	13.5	SE	This is an expansion project. No forest land is involved in the project site. The land is already in possession with Mahan Energen Limited.
Forests																													
Name	Distance (km)	Direction																											
Open mixed jungle	3.7	NE																											
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Open mixed jungle	9.2	NE																											
Fairly Dense Jungle	13.5	SE																											
National Park	No	None within 15 km radius																											
Wildlife Sanctuary	No	None within 15 km radius																											
Archaeological sites monuments/historical temples etc.	No	None within 15 km.																											
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:	No National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 km from the plant boundary.																												
Additional information (if any)	--																												

Availability of Schedule-I Species and study area – 21 mammalian species were recorded from the study area; of which none were reported for the plant area. Out of 21 mammalian species, 1 species is under Schedule I of WPA, 1972 reported outside study area.

Baseline data of environmental attributes like ambient air, water, soil, meteorology, noise, ecology, socioeconomic



condition will be collected as per the standard and specific Terms of Reference accorded by MoEF&CC. The primary data will be collected from period March'2024 to May'2024.

• **Court case details:**

Any litigation/ Court Case pertaining to the project	Local Civil Court are under hearing & Consideration and reserved for judgment.
Is the proposal under any investigation? If so, details thereof.	No
Any violation case pertaining to the project:	No
Additional information (if any)	--

**3.1.3. Deliberations by the committee in previous meetings**

N/A

**3.1.4. Deliberations by the EAC in current meetings**

**The EAC during deliberations noted the following:**

The proposal is for grant of Terms of Reference (ToR) to the project for conducting EIA study for proposed construction of the Expansion of Bandhaura Thermal Power Plant under Phase-III by adding 1600 (2x800) MW Ultra Super Critical TPP to Existing 2800 (1200+1600) MW Ph-I & Ph-II in an area of 1170 Acres within the existing plant boundary at District Singrauli, Madhya Pradesh by M/s Mahan Energen Limited.

The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, as amended as the power generation capacity of proposed expansion is beyond threshold capacity of 500MW i.e. 1600 MW and requires appraisal at Central level by the sectoral EAC in the Ministry.

The EAC noted that based on Comprehensive Environmental Pollution Index (CEPI) score, Central Pollution Control Board (CPCB) has classified Singrauli as Critically Polluted Area and later in 2016, it was brought under Severally Polluted Area.

The EAC observed that no alternative site analysis has been carried out by the project proponent as it is a brownfield project within same land area.

It was also brought to the notice of EAC that some suggestions were received from a trust for this project and in this regard a reply was sought from PP vide email dated 14/02/2024. The PP vide email dated 15/02/2024 provided the reply. The Committee is of the view that PP shall address the issues while preparing the EIA/EMP Report as agreed in its reply.

**5.3.4** The EAC 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 construction of the Expansion of Bandhaura Thermal Power Plant under Phase-III by adding 1600 (2x800) MW Ultra Super Critical TPP to Existing 2800 (1200+1600) MW Ph-I & Ph-II in an area of 1170 Acres within the existing plant boundary at District Singrauli, Madhya Pradesh by M/s Mahan Energen Limited under the provisions of the EIA Notification, 2006, as amended along with the additional/specific ToR:

**3.1.5. Recommendation of EAC**

### 3.1.6. Details of Terms of Reference

#### 3.1.6.1. Specific

<b>Disaster Management</b>	
1.	Disaster Management Plan shall be prepared and incorporated in EIA/EMP report.
<b>Environmental Management and Biodiversity Conservation</b>	
1.	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.
2.	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.
3.	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.
4.	Details of Ash management of existing (last 5 years) and proposed project shall be submitted, along with 5-year plan for 100 % ash utilization.
5.	Details of Dry Ash handling system along with supplementary coal handling system shall be submitted.
6.	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.
7.	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.
8.	Baseline Study for Heavy metals in Ground water, Surface water and soil to be carried out and incorporated in EIA/EMP report.
9.	Details pertaining to water source, treatment and discharge should be provided.
10.	Zero Liquid Discharge plan shall be submitted.
11.	PP shall submit action plan for using treated Sewage/Domestic wastewater for its operations.
12.	Project Proponent to conduct Environmental Cost Benefit Analysis for the project in EIA/EMP Report.
13.	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.
14.	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.
1 5.	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 6.	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 7.	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 8.	A comparative chart shall be prepared with changes observed from previous baseline study and present baseline study.
1 9.	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 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.
2 0.	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 video clip of existing green belt. Plan shall be duly approved by the local forest department.
<b>Miscellaneous..</b>	
1.	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.
2.	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.	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.
4.	Certified compliance report of previous EC to be submitted certified by Regional office of the MoEF&CC. IRO 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.
5.	PP shall submit details of court cases and its status for the project.

6.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph 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.
7.	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.
8.	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.
9.	Aerial view video of project site and transportation route proposed for this project shall be recorded through drone and be submitted.
10.	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.

### **Socio-economic Study**

1.	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.
2.	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.
3.	Demographic details in 10 km area shall be submitted.

### **3.1.6.2. Standard**

1(c) d)	<b>Thermal Power Plants</b>
<b>Additional TOR for Coastal Based Thermal Power Plants Projects (TPPs)</b>	
1.	Tsunami Emergency Management Plan shall be prepared wherever applicable and Plan submitted prior to the commencement of construction work.
1.	Impact on fisheries at various socio economic level shall be assessed.
1.	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.
1.	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.
1.	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.



1.	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 Desalinization Plants (if any) should not be discharged into sea without adequate dilution.
1.	Marshy areas which hold large quantities of flood water to be identified and shall not be disturbed.
1.	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.
1.	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.
1.	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.
1.	Low lying areas fulfilling the definition wetland as per Ramsar Convention shall be identified and clearly demarcated w.r.t the proposed site.
1.	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.
<b>Corporate Environment Policy</b>	
1.	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.
1.	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.
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.
1.	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.
<b>Details of the Project and Site</b>	
1.	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.
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.



1.	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.
1.	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.
1.	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.
1.	Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.
1.	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.
1.	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.
1.	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.
1.	The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.
1.	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.
<b>Ecology biodiversity and Environment</b>	
1.	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.
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.
1.	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.
1.	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.
1.	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.

1.	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.
1.	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
1.	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 assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.
1.	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.
1.	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.
1.	Feasibility of near zero discharge concept shall be critically examined and its details submitted.
1.	Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.
1.	Plan for recirculation of ash pond water and its implementation shall be submitted.
1.	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.
1.	Hazards Characterization: Past incidents of hazard events within 10km radius of project area with detailed analysis of causes and probability of reoccurrence
<b>Environmental Baseline study and mitigation measures</b>	
1.	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.
1.	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.
1.	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.
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 wins 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.
1.	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).
1.	A list of industries existing and proposed in the study area shall be furnished.
1.	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.
1.	Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
1.	Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
1.	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
<b>Environmental Management Plan</b>	
1.	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.
1.	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 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.
1.	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.
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.
<b>Green belt development</b>	
1.	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
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 <sub>2</sub> and other gaseous pollutants and hence a stratified green belt should be developed.
<b>Miscellaneous</b>	
1.	All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.
1.	Details of litigation pending or otherwise with respect to project in any Court, Tribunal etc. shall invariably be furnished.
1.	In case any dismantling of old plants are envisaged, the planned land use & land reclamation of dismantled area to be furnished.
<b>Socio-economic activities</b>	
1.	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.
1.	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.
1.	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.
1.	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 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.
1.	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.
1.	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.
1.	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.
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.
<b>Statutory compliance</b>	
1.	The proposed project shall be given a unique name in consonance with the name submitted to other Government

	Departments etc. for its better identification and reference.
1.	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.
1.	Vision document specifying prospective long term plan of the project shall be formulated and submitted.

### 3.2. Agenda Item No 2:

#### 3.2.1. Details of the proposal

<b>Proposed Expansion from 1320 MW to 1980 MW Buxar Thermal Power Project by installing 1x660 MW plant unit Near Chausa, district Buxar, Bihar by SJVN THERMAL PVT LTD located at BUXAR,BIHAR</b>			
<b>Proposal For</b>		Fresh ToR	
<b>Proposal No</b>	<b>File No</b>	<b>Submission Date</b>	<b>Activity (Schedule Item)</b>
<a href="#">IA/BR/THE/439566/2023</a>	J-13012/69/2008-IA.I (T)	10/10/2023	Thermal Power Plants (1(d))

#### 3.2.2. Project Salient Features

The proposal is for grant of Terms of Reference to Expansion from 1320 MW to 1980 MW Buxar Thermal Power Project by installing 1x660 MW plant unit Near Chausa, district Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd.

**5.4.2**The Project Proponent and the accredited Consultant M/s. Mantec Consultants Pvt. Ltd (Accreditation valid till: 10.04.2024) made a detailed presentation on the salient features of the project and informed that:

1. The Salient features of the project are as under:

##### 1. Project details:

Name of the Proposal	Proposed Expansion from 1320 MW to 1980 MW Coal Based Buxar Thermal Power Project by installing 1x660 MW Unit.
Proposal No.	IA/BR/THE/439566/2023
Location	Near Chausa, District Buxar, Bihar
Company's Name	M/s SJVN Thermal Power (P) Limited
Accredited Consultant and certificate no.	Accreditation No.: NABET/EIA/2326/RA 0305, Valid till 20.04.2026
Inter- state issue involved	Yes, Bihar - Uttar Pradesh ~ 1 km in NW
Seismic zone	Zone-III



### 1. Category details:

Category of the project	Cat – A, Sector – 1(d)
Capacity	Existing Project Capacity - 1320 MW Proposed project capacity - 1980 MW
Attracts the General Conditions (Yes/No)	Yes, (Inter-state boundary ~ 1 km in NW)
Additional information (if any)	

### 1. Project Description:

If expansion, the details of ECs (including amendments and extension of validity) of existing Units etc.	The Environmental Clearance was accorded by Ministry of Environment, Forest and Climate Change vide File No. J-13012/69/2008-IA.I(T), dated 28.02.2017 for the 2x660 MW (1320 MW) Coal Based Super Critical Buxar thermal power project (BTTP) at near village Chausa, District Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd.														
Amendments granted, if Yes details	NA														
Expansion / Green Field (new): (IPP / Merchant / Captive):	Expansion														
If expansion, the date of latest monitoring done by the Regional Office (R.O) of MoEF&CC for compliance of the conditions stipulated in the environmental and CRZ clearances of the previous phases. A certified copy of the latest R.O. monitoring report shall also be submitted.	Will be obtained														
Specific webpage address where all EC related documents (including monitoring and compliance related reports/documents) of the specific project under consideration are /will be available. Also contact details of P P's officer responsible for updating this webpage/ information.	<a href="https://sjvn.nic.in/">https://sjvn.nic.in/</a>														
Co-ordinates of all four corners of TPP Site:	<table><thead><tr><th>Pillar No.</th><th>Latitudes</th><th>Longitudes</th></tr></thead><tbody><tr><td>A</td><td>25°28'55.84"N</td><td>83°52'31.18"E</td></tr><tr><td>B</td><td>25°28'59.65"N</td><td>83°53'18.52"E</td></tr><tr><td>C</td><td>25°28'18.26"N</td><td>83°53'21.78"E</td></tr></tbody></table>			Pillar No.	Latitudes	Longitudes	A	25°28'55.84"N	83°52'31.18"E	B	25°28'59.65"N	83°53'18.52"E	C	25°28'18.26"N	83°53'21.78"E
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E	25°27'37.14"N	83°52'19.06"E								
F	25°28'25.76"N	83°52'23.46"E								
Average height of:  1. (a) TPP site,  (b) Ash pond site etc. above MSL	Above means sea level (MSL)  1. 65.52 m 2. 56 m									
Whether the project is in the Critically Pol luted Area (CPA) or within 10 km of CP A. If so, the details thereof:	No,									
CRZ Clearance	No,									
Cost of the Project (As per EC and revise d): Cost of the proposed activity in the amend ment:	<b>Total Cost:</b> Rs. 16,909.30 Crores <b>Existing:</b> Rs. 10,520.48 Crores <b>Proposed:</b> Rs. 6,388.82 Crores									
Employment Potential for entire project/ p lant and employment potential for the prop osed amendment (specify number of perso ns and quantitative information).	During Construction Phase :5550 Nos  During Operation Phase: 4500 Nos.									
Benefits of the project (specify quantitativ e information)	<ul style="list-style-type: none"><li>• Fulfill power demand of the country by 1980 MW power gene ration.</li><li>• Employment generation of 4500 Nos. of employee.</li></ul>									

#### 1. Electricity generation capacity:

Capacity & Unit Configurations:	1320 MW + 660 MW
Generation of Electricity Annually	9828 + 4914 = 14742 Million Unit

#### 1. Details of fuel and Ash disposal

Fuel to be used:	Coal & LDO
Quantity of Fuel required per Annum:	<p>Annual coal requirement for the plant shall be</p> <p>4.97 MTPA (For Stage - I)</p> <p>3.10 MTPA (For Stage - II)</p>

Coal Linkage / Coal Block: (If Block allotted, status of EC & FC of the Block)	<ol style="list-style-type: none"> <li>1. Fuel Supply Agreement (FSA) was signed between STPL and CIL/CCL for Long-term coal linkage to Buxar TPP (2x660 MW) on 26.07.2023 for supplying of 4.976 Million MTPA of G-9 to G14 Grade coal.</li> <li>2. Meeting of Standing Linkage Committee (Long Term) of MoP, GoI was held on 16.06.2023. As per the minutes of meeting, the Standing Linkage Committee (Long Term) has recommended for Long Term Coal Linkage to Stage-2, BTPP.</li> </ol>
Details of mode of transportation of coal from coal source to the plant premises along with distances	<p>Proposed- The transportation of Coal for Buxar Stage-II (1X660 MW) is proposed through existing rail network.</p> <p>Existing - Imported and Domestic coal will be transported through rail. Eastern Central Railways provided in-principle approval for railway siding vide letter dated 29.09.2015</p>
Fly Ash Disposal System Proposed	<p>Pneumatic conveying system shall be employed for extraction of fly ash from the electrostatic precipitator hoppers in dry form. This dry ash shall be taken to buffer hoppers of unit located near to ESP. Dry ash from buffer hoppers shall be transported to main storage silos. The main ash storage silos shall be placed on the rail line for further utilization through rail wagons. There shall be two nos. of new ash silos in the existing silo area. The storage capacity of each silo shall be approx. 1800 m<sup>3</sup>. The user industries shall take the dry fly ash from these silos in closed tankers/Rail wagons/Open trucks.</p> <p>For wet disposal of dry ash extracted from various ESP hoppers, the same shall be diverted through feeder ejector to ash slurry pump house.</p>
Ash Pond/ Dyke (Area, Location & Coordinates) Average height of area above MSL (m)	<p><b>Existing</b> - Ash Pond Area - 282 acres 25°28'36.46"N to 25°28'48.73"N, &amp; 83°52'39.77"E to 83°52'52.98"E MSL (m): 83 – 88 meter</p> <p><b>Proposed</b> - Ash pond Area - 165 acres 25°27'8.00"N to 25°27'15.50"N &amp; 83°52'57.77"E to 83°53'11.47"E MSL(m): 88 – 89 meter</p>
Quantity of  1. Fly Ash to be generated 2. Bottom Ash to be generated:	<p>a. 2.74 MTPA b. 1.614 MTPA</p>
Fly Ash utilization (details)	<p>Pneumatic conveying system (either vacuum system or pressurized system) shall be employed for extraction of fly ash from the electrostatic precipitator hoppers in dry form. This dry ash shall be taken to buffer hoppers of unit located near to ESP. Dry ash from buffer hoppers shall be transported to main storage silos. The main ash storage silos shall be placed on the rail line for further utilization through rail wagons.</p> <p>There shall be two nos. of new ash silos in the existing silo area. The storage capacity of each silo shall be 1800 m<sup>3</sup>. The user industries shall take the dry fly ash from these silos in closed tankers/Rail wagons/Open trucks.</p> <p>For wet disposal of dry ash extracted from various ESP hoppers, the same shall be diverted through feeder ejector to ash slurry pump house.</p> <p>EOI for fly ash utilization is obtained from Rural Work Development, Govt. of Bihar vide letter no. BRRDA (HQ) PMGSY-581/2015/65 dated 07.01.2016, Road Construction department, Bihar vide letter no. Sec-11/Vividh-03-41/2015-192 dated 08.01.2016 &amp; other private companies like R. S. Mishra Enterprises, Lafarge, Dalmia Bharat Cement etc.</p>
Stack Height (m) & Type of Flue	<p><b>Proposed-</b> Existing - Stack Height - 225.52 m (For stage - II) &amp; 275 m (For Stage - I) Type of flue - Flue Gas Desulphurization (FGD) and Selective Catalytic Reduction (SCR)</p>

shall be installed in the proposed Thermal Power Plant.

### 1. Water Requirement:

Source of Water:	The makeup water for the project is proposed to be drawn from River Ganga a distance of about 5kms.
Quantity of water requirement:	<b>During Construction Phase:</b> Existing: 200 KLD Proposed: 100 KLD. <b>During Operation Phase:</b> Existing: 134561 KLD (55 Cusec). Proposed: 73397 KLD (30 Cusec).
Distance of source of water from Plant:	5 km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	Intake well
Mode of conveyance of water:	Pipeline
Status of water linkage:	Water permission from Central Water Commission, Irrigation Planning (North), Govt. of Bihar issued vide letter no. 7/2/2BH (10)/2010 IP (N)/585-587 dated 24.09.2010 for 55 cusecs. Permission for additional 30 cusec will be obtained.
(If source is Sea water) Desalination Plant Capacity	NA
Mode / Management of Brine:	NA
Cooling system	Induced Draft Cooling Tower

### 1. Land Area Breakup:

Land Requirement:  1. TPP Site 2. Ash Pond 3. Township 4. Railway Siding & Others 5. Raw Water Reservoir 6. Green Belt 7. others  Total (if expansion state additional land requirement)	Areas in Acres			
	Description	Existing	Proposed	Total
	Main plant, BOP & CHP & Misc. facilities	450	0	450

Ash Disposal area	28 2	165	44 7
Green Belt	17 8	0	17 8
Township	95	0	95
Land for miscellaneous facilities like roads, etc.	60	0	60
Lay down area (converted in green belt after Construction)	0	80	80
<b>Total</b>	<b>10 65</b>	<b>245</b>	<b>13 10</b>
Railway siding and water pipeline Corridor	22 5	5	23 0

Status of Land Acquisition:

Land for Stage-I is already acquired and land for Stage-2 is under identification.

Status of the project:

If under construction phase: please specify the reasons for delay, works completed till date and balance works along with expected date of completion.  
If under operation phase, date of commissioning (COD) of each unit. Whether the plant was under shutdown since commissioning, details and reasons.

Stage - I is in under construction.

Break-Up of land-use of TPP site:

1. Total land required for project components
2. Private land
3. Government land
4. Forest Land
  1. Green belt development in time bound manner should be completed.

Land required for Expansion i.e 250 Acres, is total private land.

#### 1. Presence of Environmentally Sensitive areas in the study area

ForestLand/ProtectedArea/ EnvironmentalSensitivityZone	Yes/No	Details Certificate/ letter/ Remarks
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Reserve Forest /Protected Forest Land	No	
National Park	No	
Wildlife Sanctuary	No	
Archaeological sites monuments/ historical temples etc	No	
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites, Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:	Ganga River ~ 5 km in North Direction Karamnasa ~ 1 km in NW direction	
Additional information (if any)	NA	

#### Availability of Schedule-I species in study area

##### 1. Court case details:

Any litigation/ Court Case pertaining to the project	<p><b>Yes</b></p> <p>1. Two (02) Acre of land belonging to K.K. Tiwari &amp; Ganesh Tiwari of main plant area is under trial at double bench of Patna, High Court. The trial is between District Administration/Bihar State Vs K.K Tiwari &amp; Ganesh Tiwari in this regard decision/judgment of court is still awaited.</p> <p>2. Cases pertaining to compensation of land related to Rail &amp; Water Corridor is pending with LARRA, Patna since January 2023. The same is also between District Administration, Buxar and related land owners.</p>
Is the proposal under any investigation? If so, details thereof.	No
Any violation case pertaining to the project:	No
Additional information (if any)	No

**5.4.3** Earlier the proposal was considered by the EAC in 2nd meeting held on 31st October, 2023 and 01st November, 2023 and deferred the proposal seeking additional information along with site visit by the sub-committee. PP vide letter dated 24.01.2024 submitted the ADS reply on Parivesh on following points after the Sub-Committee of EAC has visited the Project site from 04.01.2024 to 06.01.2024.

**Query 1: Re-submit the ash pond area in Ha in terms of MoEF&CC latest notification. Environmental sensitivity and land use pattern of all alternative areas for location of ash pond area shall be submitted.**

**Reply:** The ash pond area for under-construction 1320 MW BTPP is 114 Ha. while that for proposed expansion unit of 1x660 MW is 67 Ha. That is total area for ash pond is 181 Ha for 1980 MW, which is less than the maximum area allowed for ash dyke i.e. 0.1 Ha. Per Mega Watt. Total 3 no. alternative locations for ash pond area of 1x660 MW expansion unit has been identified as per KML file attached (Annexure - I). As per environment sensitivity analysis (Annexure - IIH), the alternative-2 land area proposed to be finalized as it is located at a distance of 1.82 Km from National Highway, 3.16 Km from nearby Karamnasa River, 6.5 Km from Ganga River and 790 m from nearest

habitation. The nearest Govt. school is located at a distance of 920 m from this alternative

**Query 2: Impact assessment of existing as well as proposed location school, hospital, and other environmental sensitive area within 10km radius of the project boundary.**

Reply: Detailed impact assessment of existing as well as proposed location like school, hospital, and other environmental sensitive area will be carried out during EIA study and the same will be incorporated in EIA/EMP Report of Proposed Expansion Project.

**Query 3: Action plan for development of 3 layer peripheral greenbelt.**

Reply: The total land acquired for 2x660 MW BTTP is 51943 Ha which includes 171.41 Ha. of greenbelt area (as per 33% norms) Out of this 171.41 Ha. of greenbelt area, 147 Ha shall be developed within the plant boundary as depicted in Greenbelt map enclosed as Annexure - IHI and IV. Further, plantation is proposed in more than the requisite requirement of 24

Ha. area along the rail and water corridor. The proposed plantation schedule for development of green belt area over 171.41 Ha considering construction activities is as under:

Sr. No.	Area (Ha.)	No. of Saplings	Time line for plantation
1.	6.24	15600	Plantation will be done by Jan '24/Feb 24
2.	8.0	20000	Plantation will be done during Q3 (Monsoon season) 2024
3.	64.35	160875	Plantation in MGR area shall be done after completion of rail infra arrangement.
4.	92.82	232050	Plantation will be done after completion of all plant activities.
<b>Total</b>	<b>171.41</b>	<b>428525</b>	

For 1x660 MW expansion unit, an additional land of 34 Ha shall be acquired for greenbelt along with 66.8 Ha. proposed for the ash pond meeting the minimum 33% greenbelt requirement.

**Query 4: Scientific reasoning for location of Installed Online Monitoring Stations as per accurate air modelling.**

Reply: Online continuous Monitoring Station as per accurate air modelling will be established during operation phase of the project.

However, as suggested by EAC, 2 Nos. additional AAQMS have been established in the predominant wind direction and Ambient Air Quality monitoring started from 10.11.2023 in addition to existing 8 Nos. of Ambient Air Quality monitoring locations (Annexure -V).

The collection of baseline data of Air, Water and Noise was started from 15.09.2023 and stand completed on 15.12.2023

The Sub-Committee of EAC has visited the Project site from 04.01.2024 to 06.01.2024, observations of the EAC are as follows:

(i) The EC was granted on February 28, 2017 for the 2 x 660 MW (1320 MW) Thermal Power Plant; however, the project is still in the construction phase and will require at least 10 to 12 months to complete and become functional.

(ii) Plantation efforts thus far have been insufficient and dispersed in the plant area and its environs. Roadside areas situated within the plant location are also devoid of vegetation. The Subcommittee members have conveyed their profound apprehension regarding this matter and have instructed the PP to expedite the plantation work in accordance with the specified

schedule, in addition to allocating sufficient funds for the plantation programme. The PP has guaranteed the planting of over 15,000 plants within the allotted time of two months.

(iii) The members also visited the suggested ash pond site and found it suitable.

(iv) Additionally, the members paid a visit to the hospital and school, both of which are in close proximity to the plant site's perimeter. The school, situated in close proximity to the village of Sikraur, is observed to be approximately 300 metres from the plant's boundary and over 1 kilometre from the main plant. Furthermore, the education department has not granted recognition to the school, which is currently housed in a shed structure. There were no students present during school time. The aforementioned medical facility, situated in the village of Akhauipur Gola, is merely a "Clinic for Medical Consultation" and not a comprehensive hospital. This facility is approximately 400 metres from the plant's boundary.

(v) Members also visited the Skill Development Training Site for women. For this centre the SJVN has given Rs. 30.00 lakh for skill development of the local people.

Remark of Sub-committee:

**(A) Remarks related to earlier EC granted for 2 x 660 MW (1320 MW) TPP:**

(i) Additionally, the Committee noted that environmental clearance was granted for the project in 2017. Subsequent developments have been observed concerning the acquisition and connection of coal to the thermal facility, its storage and transportation, the construction of a railway siding, and the integration of a Merry-go-Round (MGR) Railway within the facility. It is viewed that the Project Proponent may appraise to the Ministry on all these points where such changes are contemplated in the project, and which are not mentioned in the environment clearance granted to the project earlier.

(ii) In addition, the Sub-Committee directed that the project proponent should submit to the Ministry an Action Plan for the development of the Green Belt, which would include the plantation implementation schedule, the name of the implementing agency, and budgetary provisions/allocations.

(iii) The Sub-Committee reaffirmed the importance of strictly enforcing all environmental safety measures in the ash pond, including the installation of HDPE lining and the reinforcement of civil structures to strengthen the ash pond's bunding and detect any potential breaches or seepage.

(iv) Committee also made observation on Buddha nala passing through the project area. It was observed by the Committee that Buddha nala passes through the project area. The project proponent has taken measures to divert the nala flowing through the plant premises. The Sub- committee made following observations which project proponent must follow.

(1) The water of the Buddha Nala shall not be utilised under any circumstances, and it shall be permitted to flow freely without obstruction or storage within the facility.

(2) The Project Proponent shall monitor the nala water flow as following ways.

(a) The monthly volume of water flowing through the Buddha Nala, as measured by a flow metre.

(b) Monthly water quality should be taken at both the entry and exit locations of thermal power plant area.

**(B) Remarks related to proposed TOR for expansion proposal of 1 x 660 MW TPP:**

The Sub-committee members are in opinion that the TOR may be considered by the EAC with the special emphasis on:

1. Adequate budgetary provision for plantation work should be allotted.
2. Disaster Management Plan should be prepared in detail as the area is falling under Seismic Zone IV.
3. Systematic EIA/EMP and appropriate control measures specially focussing on environmentally sensitive locations (school, college, hospitals etc.) should be done.

**3.2.3. Deliberations by the committee in previous meetings**

**Date of EAC 1 :31/10/2023**

### **Deliberations of EAC 1 :**

#### **The EAC during deliberations noted the following:**

The proposal is for grant of Terms of Reference to the project for Expansion from 1320 MW to 1980 MW Buxar Thermal Power Project by installing 1x660 MW plant unit Near Chausa, district Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd.

The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level.

The EAC noted that green plantation is not up to the mark, though the plant is under construction but at least peripheral green belt plantation should have been done by the PP. Further, GLCs value for PM2.5 and PM10 showed by the PP were also found to be unrealistic.

The EAC observed that under construction plant of which expansion has been proposed is 350m away from school boundary and in very close vicinity of the hospital as well. The EAC was of the view that the basic information like GLC of critical environmental parameters, settings around the power plant etc have been explained properly so that EAC can frame appropriate TOR for conducting EIA study. The EAC showed displeasure about the performance of M/s. Mantec Consultants in collecting these data/information.

The EAC after detailed deliberation on the information submitted and as presented during the meeting decided to conduct site visit by EAC sub-committee before making any recommendations on proposal and **deferred** the proposal for want of following additional information:

1. Re-submit the ash pond area in Ha in terms of MoEF&CC latest notification. Environmental sensitivity and land use pattern of all alternative areas for location of ash pond area shall be submitted.
2. Impact assessment of existing as well as proposed location school, hospital, and other environmental sensitive area within 10km radius of the project boundary.
3. Action plan for development of 3 layer peripheral greenbelt.
4. Scientific reasoning for location of Installed Online Monitoring Stations as per accurate air modelling.

*The proposal is therefore **deferred** on the above lines.*

### **3.2.4. Deliberations by the EAC in current meetings**

#### **The EAC during deliberations noted the following:**

The proposal is for grant of Terms of Reference (ToR) to the project for conducting EIA study for proposed construction of the Expansion from 1320 MW to 1980 MW Buxar Thermal Power Project by installing 1x660 MW plant unit Near Chausa, district Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd.

The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, as amended as the power generation capacity of proposed expansion is beyond threshold capacity of 500 MW i.e. 660 MW and requires appraisal at Central level by the sectoral EAC in the Ministry. The EAC noted that UP-Bihar boundary is 1.2km away from the project boundary.

The EAC deliberated about quality of road leading towards SJVN office as it not easily approachable and plantation that will be carried out on upcoming months. Accordingly, the PP vide email dated 14.02.2024 submitted the following:

1. The road leading to office of SJVN will be completed by 31st March 2024.
2. 15600 plants as target to be planted during Jan/Feb 2024 will be completed by planting saplings by 31st March, 2024.

**5.4.5** The EAC 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 Consultation (Hearing& Written submission) to the project for construction of the Expansion from 1320 MW to 1980 MW Buxar Thermal Power Project by installing 1x660 MW plant unit Near Chausa, district Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd.under the provisions of the EIA Notification, 2006, as amended along with the additional/specific ToR:



### 3.2.5. Recommendation of EAC

Recommended

### 3.2.6. Details of Terms of Reference

#### 3.2.6.1. Specific

[B] Disaster Management	
1.	Disaster Management Plan shall be prepared and incorporated in EIA/EMP report.
Environmental Management and Biodiversity Conservation	
1.	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.
2.	Wildlife conservation plan shall be prepared, in consultation with State forest and wildlife department, with adequate fund for wildlife habitat management, preserving wildlife and its corridors and be submitted along with EIA/EMP report. Human-Wildlife Conflict issue shall be studied and such incidences reported in the study area during last 10 years shall be submitted. No provision for purchasing the vehicle shall be made in the wildlife conservation plan.
3.	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 same shall be included in EIA/EMP report.
4.	Details of the existing rail, road networks and alignment of transmission lines along with quantity of coal being transported/to be transported for existing units and proposed expansion, its source and transportation mode shall be submitted.
5.	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.
6.	A comparative chart shall be prepared with changes observed from previous baseline study and present baseline study.
7.	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 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.
8.	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 video clip of existing green belt. Plan shall be dully approved by the DFO.
9.	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 0.	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 1.	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 2.	Details of Dry Ash handling system along with supplementary coal handling system shall be submitted.
1 3.	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 4.	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 5.	Baseline Study for Heavy metals in Ground water, Surface water and soil to be carried out and incorporated in EIA/EMP report.
1 6.	Details pertaining to water source, treatment and discharge should be provided.
1 7.	Zero Liquid Discharge plan shall be submitted.
1 8.	PP shall submit action plan for using treated Sewage/Domestic wastewater for its operations.
1 9.	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.
2 0.	Project Proponent to conduct Environmental Cost Benefit Analysis for the project in EIA/EMP Report.
<b>Miscellaneous..</b>	
1.	PP shall address the recommendation of sub-committee while preparing EIA/EMP and submit its compliance.
2.	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.	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.
4.	Certified compliance report of previous EC to be submitted certified by Regional office of the MoEF&CC. IRO 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.
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.

6.	PP shall submit details of court cases and its status for the project.
7.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph 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.
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.
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.
10.	Aerial view video of project site and transportation route proposed for this project shall be recorded through drone and be submitted.

#### **Socio-economic Study**

1.	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.
2.	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). 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.
3.	Demographic details in 10 km area shall be submitted.

#### **3.2.6.2. Standard**

1(c) d)	<b>Thermal Power Plants</b>
<b>Additional TOR for Coastal Based Thermal Power Plants Projects (TPPs)</b>	
1.	Tsunami Emergency Management Plan shall be prepared wherever applicable and Plan submitted prior to the commencement of construction work.
1.	Impact on fisheries at various socio economic level shall be assessed.
1.	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.
1.	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.
1.	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.
1.	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 Desalinization Plants (if any) should not be discharged into sea without adequate dilution.
1.	Marshy areas which hold large quantities of flood water to be identified and shall not be disturbed.
1.	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.
1.	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.
1.	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.
1.	Low lying areas fulfilling the definition wetland as per Ramsar Convention shall be identified and clearly demarcated w.r.t the proposed site.
1.	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.
<b>Corporate Environment Policy</b>	
1.	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.
1.	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.
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.
1.	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.
<b>Details of the Project and Site</b>	
1.	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.
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.
1.	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.
1.	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.
1.	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.
1.	Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.
1.	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.
1.	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.
1.	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.
1.	The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.
1.	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.
<b>Ecology biodiversity and Environment</b>	
1.	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.
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.
1.	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.
1.	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.
1.	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.



1.	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.
1.	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
1.	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 assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.
1.	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.
1.	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.
1.	Feasibility of near zero discharge concept shall be critically examined and its details submitted.
1.	Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.
1.	Plan for recirculation of ash pond water and its implementation shall be submitted.
1.	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.
1.	Hazards Characterization: Past incidents of hazard events within 10km radius of project area with detailed analysis of causes and probability of reoccurrence
<b>Environmental Baseline study and mitigation measures</b>	
1.	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.
1.	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.
1.	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.
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 wins 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.
1.	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).
1.	A list of industries existing and proposed in the study area shall be furnished.
1.	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.
1.	Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
1.	Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
1.	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
<b>Environmental Management Plan</b>	
1.	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.
1.	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 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.
1.	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.
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.
<b>Green belt development</b>	
1.	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
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 <sub>2</sub> and other gaseous pollutants and hence a stratified green belt should be developed.
<b>Miscellaneous</b>	
1.	All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.
1.	Details of litigation pending or otherwise with respect to project in any Court, Tribunal etc. shall invariably be furnished.
1.	In case any dismantling of old plants are envisaged, the planned land use & land reclamation of dismantled area to be furnished.
<b>Socio-economic activities</b>	
1.	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.
1.	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.
1.	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.
1.	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 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.
1.	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.
1.	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.
1.	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.
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.
<b>Statutory compliance</b>	
1.	The proposed project shall be given a unique name in consonance with the name submitted to other Government

	Departments etc. for its better identification and reference.
1.	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.
1.	Vision document specifying prospective long term plan of the project shall be formulated and submitted.

### 3.3. Agenda Item No 3:

#### 3.3.1. Details of the proposal

<b>2 x 525 MW Coal Based Thermal Power Plant at village Malibrahamani in Chhendipada Block, Dist. Angul, Odisha by Jindal Steel &amp; Power Ltd. located at ANUGUL,ODISHA</b>			
<b>Proposal For</b>		Fresh EC	
<b>Proposal No</b>	<b>File No</b>	<b>Submission Date</b>	<b>Activity (Schedule Item)</b>
<a href="#">IA/OR/THE/459699/2024</a>	J-13011/79/2007-IA.II(T)	28/01/2024	Thermal Power Plants (1(d))

#### 3.3.2. Project Salient Features

The proposal is for grant of Environmental Clearance to the project 2 x 525 MW Coal Based Thermal Power Plant in an area of 400 Ha at village Malibrahamani, Balichandrapur and Nisa, Dist. Angul, Odisha by M/s Jindal Steel & Power Ltd.

**5.2.2** The Project Proponent along with consultant M/s. Enviro Infra Solution Pvt. Ltd made a detailed presentation on the salient features of the project and informed that:

1. The proposal is for Environmental Clearance to the project for a 2 x 525 MW Coal Based Thermal Power Plant in an area of 400 Ha located at village Malibrahamani and Nisha, Dist. Angul, Odisha by M/s. Jindal Steel & Power Ltd.

1. The salient features of the project:

- **Project details:**

Name of the Proposal	2X525 MW Coal based thermal power plant at at Village Malibrahamani and Nisa, District Angul, Odisha
Proposal No.	IA/OR/THE/459699/2024
Location	Odisha
Company's Name	Jindal Steel and Power Ltd.
Accredited Consultant and certificate no.	Enviro Infra Solution Pvt. Ltd., Letter no. NABET/ EIA/2225/RA 0300 Validity: 27.11.2025



Inter- state issue involved	No
Seismic zone	Zone-III as per relevant IS

• **Category details:**

Category of the project	A
Capacity	1050 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	<p>This project was previously promoted by M/s Monnet Power Company Limited (MPCL) who has started construction in 2010 and stopped by March 2015, without the plant becoming operational. The project had received EC vide letter no. J-13011/79/2007-IA.II(T) dated 29.06.2010 and its validity had been extended vide letters dated 27.05.2015 and 10.07.2017.</p> <p>M/s Jindal Steel &amp; Power Limited (JSPL) has recently purchased the partially constructed &amp; not yet operational 2X525 MW coal based thermal power plant at village Malibrahmani, District Angul, Odisha from the liquidator of the previous promoters of the project appointed by the NCLT under Insolvency and Bankruptcy Code, 2016.</p> <p>After the purchase of the said project, M/s Jindal Steel &amp; Power Limited intends to resume construction of the project after obtaining fresh EC as per provisions of MoEF&amp;CC Notification S.O. 1247(E) dt. 18.03.2021 wherein projects where EC has lapsed but construction has been undertaken more than 50%, exemption in public hearing may be granted on consideration by the EAC when the PP applies for the EC de novo.</p> <p>After becoming the successful bidder, M/s JSPL had commenced baseline monitoring through NABL accredited lab for a period of 3 months (Dec 2022-Feb 2023) in anticipation that we shall have to apply for environmental clearance afresh.</p>

• **Project description:**

If expansion, the details of ECs (including amendments and extension of validity) of existing Units etc.	Not applicable since it is not an expansion
Amendments granted, if Yes details	Nil
Expansion / Green Field (new): (IPP / Merchant / Captive):	Brownfield but new (partially constructed & non-operational) Captive
Co-ordinates of all four corners of TPP Site:	<p>Plant area</p> <p>A. North most: 20°55'57.75"N, 84°59'13.78"E</p> <p>B. East most: 20°55'04.93"N, 84°59'59.75"E</p> <p>C. South most: 20°54'50.21"N, 84°59'30.7"E</p> <p>D. West most: 20°55'09.48"N, 84°58'58.85"E</p>

Average height of: (a) TPP site, (b) ash pond site etc. above MSL	179 m to 210 m amsl 166 m to 210 m amsl
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:	Rs. 5755 crores. Out of this Rs. 3947 Crore had been spent by previous PP till takeover.  The balance works are expected to cost Rs. 1808 crores.
Employment Potential for entire project/ plant and employment potential for the proposed amendment (specify number of persons and quantitative information)	400 persons
Benefits of the project (specify quantitative information)	Employment (direct & indirect), tax to the state exchequer, benefits to the local population due to peripheral development measures that shall be undertaken by the company

• **Electricity generation capacity:**

Capacity & Unit Configurations	2 X 525 MW
Generation of Electricity Annually	7,560,000 MW

• **Details of fuel and Ash disposal**

Fuel to be used:	Coal
Quantity of Fuel required per Annum:	5.45 MTPA coal at 80% PLF or 6.81 MTPA at 100% PLF
Coal Linkage / Coal Block: (If Block allotted, the status of EC & FC of the Block)	JSPL owned Utkal B1/B2 or Utkal-C Coal Mines in Odisha Status: Utkal B1, EC vide letter no. No.J-11015/309/2006-IA.II(M) dated 09.04.2007. Utkal B2, vide letter no. J-11015/108/2003-IA.II(M) dated 28 Jul 2006 Utkal C, EC vide letter no. J-11015/108/2003-IA.II(M) dated 28.07.2006
Details of the mode of transportation of coal source to the plant premises along with distances	Coal will be transported by conveyor.
Fly Ash Disposal System Proposed	Fly ash: Dry extraction & utilisation, Bottom ash: slurry & disposal.
Ash Pond/ Dyke	Location: Village Malibrahmani, Nisha, Dist. Angul, Odisha

(Area, Location & Co-ordinates) Average height of area above MSL (m)	<p>Ash Disposal Area coordinates:</p> <p>A. North most: 20°56'16.30"N, 85°00'12.71"E</p> <p>B. East most: 20°55'03.43"N, 85°01'08.92"E</p> <p>C. South most: 20°55'03.43"N, 85°01'08.92"E</p> <p>D. West most: 20°56'12.29"N, 85°00'08.50"E</p> <p>Elevation : 166 m to 210 m amsl</p>
<p>Quantity of</p> <p>1. Fly Ash to be generated</p> <p>2. Bottom Ash to be generated:</p>	<p>Fly ash - 1.744 MTPA at 80% PLF or 2.176 MTPA at 100% PLF.</p> <p>Bottom ash - 0.436 MTPA at 80% PLF or 0.544 MTPA at 100% PLF.</p>
Fly Ash utilization (details)	The Ash utilisation shall be done as per Ministry of Environment, Forests and Climate Change Notification dated 31-12-2021. Fly ash collected from silo will be collected in dry form for commercial use for cement manufacturing, brick making, road embankment, filling in mines, etc. and balance stored in ash disposal area. Bottom ash would be disposed in slurry form to ash pond located on the east of the power plant.
Stack Height (m) & Type of Flue	Twin-flue common stack of 275 m height.

• **Water Requirement:**

Source of Water:	Brahamani river
Quantity of water requirement:	3050 m <sup>3</sup> /hr
Distance of source of water from Plant:	22 km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	Samal Barrage is existing on Brahamani River
Mode of conveyance of water:	Pipeline
Status of water linkage:	Previous PP had received approval from the Odisha Water Resource Department (OWRD) for drawing 37 cusecs of water from Brahamani. High Level Committee, Govt. of Odisha has granted approval for transfer of the permission to JSP
(If source is Sea water) Desalination Plant Capacity	Not applicable
Mode / Management of Brine:	Not applicable

Cooling system

Recirculating type cooling water system with wet type Induced Draft Cooling Towers using clarified water as cooling medium.

• **Land Area Breakup:**

Land Requirement:

1. TPP Site
2. Ash Pond
3. Township
4. Railway Siding & Others
5. Raw Water Reservoir
6. Green Belt
7. others

- a) 175 ha
- b) 155 ha
- c) 20 ha

50ha

Total (if expansion state additional land requirement)

Status of Land Acquisition:

Component	Acquired, ha	To be acquired, ha	Total, ha
Plant	166.265	8.735	175
Ash disposal	127.754	27.246	155
Township (& RR colony)	9.603	10.397	20
Service Corridor & misc.	0	50	50
Total	303.622	96.378	400

Company will optimize land and try to minimize land acquisition in project area.

Status of the project:

If under construction phase: please specify the reasons for delay, works completed till date and balance works along with expected date of completion.

66% complete

The construction was carried out from 2010 to March 2015. All major civil foundation works had been completed in 2014. Boiler construction of unit 1 was in advance stage in 2014 as its hydro test has been completed in that year. Construction ceased from March 2015 due to insolvency of the previous promotor. JSP Ltd. will resume construction & operation after receipt of statutory clearances.

If under operation phase, date of commissioning (COD) of each unit.

Not operational



Whether the plant was under shutdown since commissioning, details and reasons.	Not commissioned till date
Break-Up of land use of TPP site:  Total land required for project components Private land Government land Forest Land	Total land required for project components - 400 ha Private land – 34.18 ha Government land – 43.917 ha Forest Land – 18.281 ha Others (industrial)- 303.622 ha

• **Presence of Environmentally Sensitive areas in the study area**

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter / Remarks																												
Reserve Forest/ Protected Forest Land	Yes	<table><tr><th>Name of Forest</th><th>Distance and Direction</th></tr><tr><td>Durgapur R F</td><td>Adjoining , W</td></tr><tr><td>Kaliakata RF</td><td>Adjoining, S</td></tr><tr><td>Keriang RF</td><td>3.4 km, SSW</td></tr><tr><td>DerjangaGolabandha P F</td><td>6.7 km, S</td></tr><tr><td>Paranga P F</td><td>0.8 km, S</td></tr><tr><td>PF near Ramadhi</td><td>Adjoining, S</td></tr><tr><td>Nisha P F</td><td>Adjoining, E</td></tr><tr><td>Malibandha R F</td><td>0.9 km, E</td></tr><tr><td>Khalapal R F</td><td>8.0 km, NNW</td></tr><tr><td>Gopalprasad RF</td><td>4.8 km, NE</td></tr><tr><td>Kaushiakhola R F</td><td>6.7 km, E</td></tr><tr><td>Kuio P F</td><td>5.5 km, E</td></tr><tr><td>Sakasingha RF</td><td>8.1 km, SE</td></tr></table>	Name of Forest	Distance and Direction	Durgapur R F	Adjoining , W	Kaliakata RF	Adjoining, S	Keriang RF	3.4 km, SSW	DerjangaGolabandha P F	6.7 km, S	Paranga P F	0.8 km, S	PF near Ramadhi	Adjoining, S	Nisha P F	Adjoining, E	Malibandha R F	0.9 km, E	Khalapal R F	8.0 km, NNW	Gopalprasad RF	4.8 km, NE	Kaushiakhola R F	6.7 km, E	Kuio P F	5.5 km, E	Sakasingha RF	8.1 km, SE
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National Park	No	Nil																								
Wildlife Sanctuary	No	Nil																								
Archaeological sites monuments/historical temples etc	No	Nil																								
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:	Yes	<p>Forests as listed earlier. Streams/ rivers as below:</p> <table><tr><td>Ghordia Nala</td><td>2.4 km , N</td></tr><tr><td>SinghadaJora</td><td>3.4 km , N</td></tr><tr><td>Kurdabhali Nala</td><td>2.0 km, SW</td></tr><tr><td>Angul Main Canal</td><td>7.1 km, SSE</td></tr><tr><td>Baleidhara Nala</td><td>3.4 km, SE</td></tr><tr><td>GhordiaNala</td><td>2.5 km, W</td></tr><tr><td>Kondhanal nala</td><td>5.0 km, N</td></tr><tr><td>Mararha Nala</td><td>6.2 km, N</td></tr><tr><td>NandiraJhor</td><td>3.2 km, S</td></tr><tr><td>MateliaJhor</td><td>7.9 km, SSE</td></tr><tr><td>Nigra Nala</td><td>7.3 km, S</td></tr><tr><td>Derjanga Reservoir</td><td>6.9 km, S</td></tr></table>	Ghordia Nala	2.4 km , N	SinghadaJora	3.4 km , N	Kurdabhali Nala	2.0 km, SW	Angul Main Canal	7.1 km, SSE	Baleidhara Nala	3.4 km, SE	GhordiaNala	2.5 km, W	Kondhanal nala	5.0 km, N	Mararha Nala	6.2 km, N	NandiraJhor	3.2 km, S	MateliaJhor	7.9 km, SSE	Nigra Nala	7.3 km, S	Derjanga Reservoir	6.9 km, S
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Mutukuria Jor	2.9 km, SSE
Satyabadi Sagar	6.3 km, ENE
Bangaru Nala	7.7 km, ENE
Gundijeri Nala	6.2 km, NW
Lingara Nala	7.6 km, SSE
Sakasingha Minor	8.3 km, SE
Jarasingha Minor	8.7 km, SE
Dhempa Nala	9.5 km, N

Availability of Schedule-I species in study area	Jackal ( <i>Canis aureus</i> ), Wolf ( <i>Canis lupus pallipes</i> ), Asiatic elephant ( <i>Elephas maximus</i> ), Jungle cat ( <i>Felis chaus</i> ), Fox ( <i>Vulpes bengalensis</i> ), Hyena ( <i>Hyena hyena</i> ), Mongoose ( <i>Herpestes edwardsi</i> ), Indian porcupine ( <i>Hystrix indica</i> ), Otter ( <i>Lutra galapensis</i> ), Small India Civet ( <i>Viverricula indica</i> ), Indian rat snake ( <i>Ptyas mucosa</i> ), Indian rock python ( <i>Python molurus</i> ), Bengal monitor ( <i>Varanus bengalensis</i> ), Yellow monitor ( <i>Varanus flavescens</i> )
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• **Court case details:**

Any litigation/ Court Case pertaining to the project	No
Is the proposal under any investigation? If so, details thereof.	No
Any violation case pertaining to the project:	No
Additional information (if any)	nil

1. The project proposal was considered by the Expert Appraisal Committee (Thermal) in its 40th meeting held on 25.04.2023 and recommended for grant of Terms of References (ToR) for the Project. The ToR accorded by the Ministry vide letter No.J-13011/79/2007-IA. II(T); dated 12.06.2023.

1. All units are listed at S.N. 1(d) of the Schedule to the Environment Impact Assessment (EIA) Notification under the category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).

1. The Ministry had issued EC earlier vide letter no. J-13011/79/2007-IA. II(T) dated 29.06.2010 and its validity had been extended vide letter dated 27.05.2015 and 10.07.2017 to the existing project in favour of M/s.Monnet Power Company Limited (MPCL) (previous promotor of the project). They had started construction in 2010 and stopped by March 2015, without the plant becoming operational. M/s Jindal Steel & Power Limited (JSP Ltd.) has recently purchased this partially constructed & not yet operational power plant from the previous promoters

of the project under the NCLT as per Insolvency and Bankruptcy Code, 2016. Fresh EC on the same project is being sought by JSP Ltd.

1. The estimated project cost is Rs 5755 crores. Total capital cost earmarked towards environmental pollution control measures is Rs 617.07 crores and the recurring cost (operation and maintenance) will be Rs 59.3 crores per annum.

1. Total Employment will be 400 persons as direct & indirect. Industry proposes to allocate Rs.2.11 Crores towards budget to address public consultation issues.

1. There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the projectsite. Kurdabali Nala is flowing at a distance of 2.0 km in SW direction.

#### 1. Baseline Environmental Scenario:

Period	From December 2022 to February 2023
AAQ parameters at 8 locations (min. & Max.)	<ul style="list-style-type: none"> <li>PM10 = 47.9 - 82.2 µg/m<sup>3</sup></li> <li>PM2.5 = 26.0 - 48.0 µg/m<sup>3</sup></li> <li>SO<sub>2</sub> = BDL(&lt;4 µg/m<sup>3</sup>) - 18.6 µg/m<sup>3</sup></li> <li>NO<sub>x</sub> = 9.3 - 24.9 µg/m<sup>3</sup></li> <li>CO = 0.115 to 0.802 mg/m<sup>3</sup></li> <li>NH<sub>3</sub>=BDL (&lt;20 µg/m<sup>3</sup>)</li> <li>Pb= 0.01g/m<sup>3</sup></li> <li>As = 0.1 ng/m<sup>3</sup></li> <li>Ni = 3.2 ng/m<sup>3</sup></li> </ul>
Incremental GLC Level	<ul style="list-style-type: none"> <li>PM10 = Max. GLC: 0.81µg/m<sup>3</sup> (800 m south-east)</li> <li>PM2.5= Max. GLC: 0.81µg/m<sup>3</sup> (800 m south east)</li> <li>SO<sub>2</sub>= Max GLC: 7.24µg/m<sup>3</sup>(800 m south-east)</li> <li>NO<sub>x</sub>= Max GLC: 1.09µg/m<sup>3</sup>(800 m south-east)</li> </ul>
Surface water samples (8 samples)	<p>pH 6.52 – 8.33, Dissolved Oxygen: 5.4-6.5 mg/lit; Total Dissolved Solids: 136.4 - 524.8 mg/lit; Sulphate (as SO<sub>4</sub>): 4.1 - 76.5 mg/lit , Nitrate (asNO<sub>3</sub>) : &lt;0.2 - 14.2 mg/lit; Chloride (as Cl) : 7.9 - 57.71 mg/lit; Iron (as Fe): &lt;0.05 - 0.48 mg/lit; BOD &lt;2 - 2.8 mg/lit;</p> <p>Heavy metals like Copper (as Cu):&lt;0.03 - &lt;0.03, Lead (as Pb): &lt;0.01, Cadmium(as Cd): &lt;0.01,Chromium (as Cr): &lt;0.05, Arsenic (as As):&lt;0.01</p>
Ground Water samples at 10 Locations	<p>pH: 6.5-6.85; Total Dissolved Solids: 92.8-1866 mg/lit; total Hardness (as CaCO<sub>3</sub>): 20-552 mg/lit; Total Alkalinity(asCaCO<sub>3</sub>): 30-480 mg/lit; Calcium (as Ca): 7.2-81.8 mg/lit; Magnesium (as Mg): 0.5-84.6 mg/lit; Sulphate (asSO<sub>4</sub>): &lt;1-78.5 mg/lit, Nitrate (as NO<sub>3</sub>): 0.1-42.8 mg/lit; Chloride (as Cl): 10-248.7 mg/lit; Iron (as Fe): &lt;0.05-0.21 mg/lit;</p> <p>Heavy metals like Lead (as Pb): &lt;0.01, Cadmium(as Cd): &lt;0.01,Chromium (as Cr): &lt;0.05, Manganese (as Mn): &lt;0.05, Arsenic (as As): &lt;0.001 and Mercury(as Hg) :&lt;0.001</p>



Noise levels Leq (Day & Night) at 8 Locations	The Leq values for day time was observed to be 50.6 to 64.1dB (A) in residential area, while during night time 40.8 to 53.6 dB (A).
Soil Quality at 5 Locations	Bulk density: 0.9 to 1.2 gm/cm <sup>3</sup> ; pH range 6.95 to 7.32; Electrical conductivity (EC); 130.4 to 242.6µhos/cm; calcium content: 21.8 to 50 mg/kg; sodium: 7692 to 9231 mg/kg; potassium: 51.2 to 114.5 mg/kg; Nitrogen: 416.2 to 642.4 mg/kg; Phosphorous: 27.0 to 57.3 mg/kg;; Manganese: 2.6 to 4.1mg/kg; Sulphur: ---to --- mg/kg; Organic Carbon: 0.15 to 1.1 %
Flora & Fauna	Schedule-I species observed in the study area: Jackal ( <i>Canis aureus</i> ), Wolf ( <i>Canis lupus pallipes</i> ), Asiatic elephant ( <i>Elephas maximus</i> ), Jungle cat ( <i>Felis chaus</i> ), Fox ( <i>Vulpes bengalensis</i> ), Hyena ( <i>Hyena hyena</i> ), Mongoose ( <i>Herpestes edwardsi</i> ), Indian porcupine ( <i>Hystrix indica</i> ), Otter ( <i>Lutra galapensis</i> ), Small India Civet ( <i>Viverricula indica</i> ), Indian rat snake ( <i>Ptyas mucosa</i> ), Indian rock python ( <i>Python molurus</i> ), Bengal monitor ( <i>Varanus bengalensis</i> ), Yellow monitor ( <i>Varanus flavescens</i> )

1. Total water requirement is 3050 m<sup>3</sup>/hr of fresh water requirement will be met from Samal Barrage existing on Brahmani River. Water withdrawal permission for 37 cusecs i.e. 3772 m<sup>3</sup>/hr from existing Samal Barrage on Brahmani River was obtained by MPCL, previous project proponent from the Odisha Water Resource Department (OWRD). Subsequent to the acquisition of the TPP by JSPL, the State Level Single Window Clearance Authority, Govt. Of Odisha vide letter SW/PP/MPCL/EXPAN/9/511 dated 12.06.2023 has noted that all the statutory approvals, allotments, clearances etc. of MPCL are to be transferred to M/s Jindal Steel & Power Ltd. Further, application for withdrawal permission has been submitted online with the Department of Water Resources, Odisha on 22.11.2023. Rain water shall also be collected and reused within the plant site to reduce intake from Samal Barrage.

1. Out of total wastewater generation of 450 m<sup>3</sup>/hr, the effluent quantity will be 434 m<sup>3</sup>/hr which will be further treated with Guard Pond and domestic sewage of 16 m<sup>3</sup>/hr will be treated through sewage treatment plant. The plant will be based on an effluent discharge system.

1. The Power requirement of the project will be 7% of the production and will be met from its own TG.

1. The project will have two numbers of 1700 TPH coal-fired boilers. An electrostatic Precipitator with a stack of height of 275 m will be installed to control the particulate emissions within the statutory limit of 30 mg/Nm<sup>3</sup> for the boilers.

1. Details of Solid waste/ Hazardous waste generation and its management:

- Bottom ash (0.436 MTPA) - To be disposed of in the ash dyke and on settlement, to be used in mine backfilling, low-lying area filling, etc.
- Fly ash (1.744 MTPA) - 100% used for roads, levelling, backfilling, cement making, brick making etc. as per Fly Ash Utilisation Notification 2021.
- The proposal is for lean-density slurry disposal with recycling of ash pond water.
- The company has earmarked 155 ha as an ash pond area including a green belt.
- Domestic waste - segregated & composted, recycled or landfilled

- Sewage sludge- composted & used as manure
- used oils/ spent oil, oil & grease- sold to authorized hazardous waste recycling vendors in drums
- Settling tank sludges - put them in an impervious pit and dispose of them at a TSDF facility
- E-waste- to authorised recyclers
- Biomedical waste - to biomedical waste management agency

1. **Public Hearing:** Public Hearing for the proposed project has been exempted by MoEF&CC in line with its Notification No. S.O. 1247 (E) dated 18.03.2021 and it was directed to go for public consultation (written submission). In compliance to the same, State Pollution Control Board, Odisha issued notice vide letter no.14983/IND-II-NoC-MISC-289 dated 26.09.2023 invited views, comments, suggestions/objections etc. relating to environmental aspects of the proposed project within 30 days of publishing of the notice. The major demand during the public hearing are related to employment, development activities in surrounding villages, environmental pollution and allowance to local farmers to sell their produce in company canteen and townships.

1. Budget of welfare expenditure based on Public Consultation:

- The total expenditure to meet public consultation other demands will be Rs. 211.5 Lakh to be distributed over 3 years.

S l. N o.	Physical activity and action plan		Year of Implementation (Budget in Rs. lakhs)			
	Name of the Activity	Physical Target	Year 1	Year 2	Year 3	Total
1	Drinking Water					
	Provision of drinking water	Provision of water supply through tankers on any community function occasion Nisha, Malibrahmani, R&R colony, Kaliakata, Balichandrapur & others, as Required	2	2	2	6
		Provision of pipeline and tanks (2nos./village) in villages Malibrahmani, Nisha and Kaliakata	6	6	6	18
2	Electricity					
		Maintenance of street light in villages Nisha and Malibrahmani	0.5	0.5	0.5	1.5
	Electricity facilities	Installation of solar lights (10 nos each year) in villages Malibrahmani, Balichandrapur and Kaliakata	4	4	4	12
3	Skill Dev					

	<b>elopment</b>					
	For Women	Provision of sewing machines (10 nos./year/village) to women for tailoring classes through Local Panchayat of Nisha, Malibrahmani, R&R colony, Kaliakata, Balichandrapur	2.5	2.5	2.5	<b>7.5</b>
	To farmers/rearing animals	Training to farmers (20 nos./ village/year) and animal rearers to increase productivity of Nisha, Malibrahmani, Kaliakata, Balichandrapur	4	4	4	<b>12</b>
	For youths/land losers	Provision of training (20 nos./ year/ village) to local youths/land losers through Local Panchayat to become self reliant (Carpentry, automobile mechanic, driving etc.) of Nisha, Malibrahmani, Kaliakata, Balichandrapur	4	4	4	<b>12</b>
<b>4</b>	<b>Education</b>					
	Monetary support to schools & underprivileged students	Provision of stationary, books, etc. to underprivileged students in the school nearby the Plant in Malibrahmani and Nisa Village	2	2	2	<b>6</b>
	Supporting meritorious students	Scholarship to meritorious students for higher education- ITI training (10 students)	1	1	1	<b>3</b>
		Laptops to top three rankers of Odisha Board Class 10 from amongst schools in 2 km radius	1.5	1.5	1.5	<b>4.5</b>
	Infrastructure	Construction of boys and girls toilets in schools (4 nos.) in villages Nisha, Malibrahmani, Kaliakata, Balichandrapur	4	4	4	<b>12</b>
		Boundary wall construction in 3 school, as per requirement from villages in 2 km radius	2	2	2	<b>6</b>
<b>5</b>	Tree Plantation	Distribution of saplings of native ethno botanical species to Nisa, Malibrahmani, Kaliakata, Balichandrapur, Kankare villages	1	1	1	<b>3</b>
<b>6</b>	Sports activities	Provision of sports material (bats, balls, wickets basket ball, football, badminton rackets, carrom boards, chess etc. ) to primary and middle Schools in Malibrahmani, Nisa and Kaliakata villages or any other schools in villages as per requirement	1.5	1.5	1.5	<b>4.5</b>
		Maintenance of playground (1 no. per year)	1	1	1	<b>3</b>
<b>7</b>	<b>Social infrastructure</b>	Repair of places of worship, community centre	1.5	1.5	1.5	<b>4.5</b>
		Construction of toilets in villages Kaliakata, Malibrahmani, Balichandrapur	2.5	2.5	2.5	<b>7.5</b>

		Repair/ Provision of drains in villages Rajjharan, Nisha, Malibrahmani, Kaliakata (Rs. 2lakh/village/ year)	8	8	8	24
		Donation in local festivals	1	1	1	3
8	<b>Infrastru cture Dev elopment</b>	Repair of internal village roads of Malibrahmani, Balichandrapur and Kaliakata	2	2	2	6
		Maintenance of village ponds and cleaning of overhead tanks of Malibrahmani, Balichandrapur and Kaliakata	1	1	1	3
9	<b>Communi cation de velopmen t</b>	Provision of free bus service on special occasions	1	1	1	3
10	<b>Expendit ure for P ublic Hea lth</b>	Medical camps (Eye checkup, pathological test,etc.) in Nisa and Malibrahmani Villages (6per year in each villages)	12	12	12	36
		Provision of ambulance on callasperrequirementin Malibrahmani and Nisa Village	10	1	1	12
		Awareness camps for recycle and reuse, importance of cleanlines s,nourishment, de-addiction in Malibrahmaniand Nisa Village	0.5	0.5	0.5	1.5
	<b>Total</b>		<b>76.5</b>	<b>67.5</b>	<b>67.5</b>	<b>211.5</b>

The expenses related scholarship for poor meritorious students, financial help training/ skill development, etc. activities are recurring in nature and will be covered in CSR.

1. Status of Litigation Pending against the proposal, if any- Nil.

#### 1. Plantation program:

- Under the proposed green belt and plantation programme, 132 ha of land in plant area, R&R colony, services area and ash pond area shall be provided with green cover. The main consideration during development of green belt and plantation are effective trapping of fugitive emission, act as sink for stack emissions, sequester carbon, noise control, balancing ecology, waste water reuse and aesthetics.
- Plants act as natural sink for a variety of pollutants as well as replenish air with fresh oxygen. The plant species would be fast growing, evergreen having large crown. As a single plant does not have all the qualities, a mixture of several varieties of plants will be chosen. Native trees will be preferred. The widths of the belt will be as per the availability all along the boundary, the criterion for selection of area/ location for green belt would be along pre dominant wind direction, along plant boundary and roadside avenue plantation and around administrative building.



- The species suggested for plantation are Kendu (*Diospyros melanoxylon*), Bel (*Aegle marmelos*) Char (*Buchanania lanzan*), Siris (*Albizia lebbek*), Neem (*Azadirachta indica*), Mango (*Mangifera indica*), Peepal (*Ficus religiosa*), Amla (*Phyllanthus embelica*), etc. Native ethno-medicinal species will be preferred.

Year	Area(inha)	Trees(Nos.)
2024-2025	32	80000
2025-2026	25	62500+casualtyplantation
2026-2027	25	62500+casualtyplantation
2027-2028	25	62500+casualtyplantation
2028-2029	25	62500+casualtyplantation
Total	132	3,30,000

### 1. Environmental Management Plan:

Adequate budgetary provisions have been made by the Company for the execution of the Environmental Management Plan. The table gives overall investment in the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures. The capital cost estimated for EMP and the Annual recurring cost of monitoring and implementation of control measures and environment management plan are given in the Table below:

#### Cost for Environment Management (Rs. Crores)

Sl. No.	Particulars	Capital Cost	Recurring Cost
1	Air pollution control (Including ESPs balance work, provision of FGD, etc.)	440	44
2	Water pollution control	30	3
3	Ash handling	130	6.5
4	Environmental Monitoring	0.92	0.26
5	Occupational Health	3.05	0.30
6	Greenbelt(ha)	13.1	5.24
	<b>TOTAL</b>	<b>617.07</b>	<b>59.3</b>

The capital investment on environmental management plan is envisaged as Rs. 617.07 crores and recurring expenditure will be Rs. 59.3 crores /year which includes the provision of installation of FGD (about Rs. 400 crores capital cost and Rs. 40 recurring cost). Till installation of FGD the recurring EMP cost shall be Rs. 19.3 crores.

### 3.3.4. Deliberations by the EAC in current meetings

#### The EAC during deliberations noted the following:

The proposal is for the grant of Environmental Clearance to the project 2 x 525 MW Coal Based Thermal Power Plant in an area of 400 Ha at village Malibrahamani, Balichandrapur and Nisa, Dist. Angul, Odisha by M/s Jindal Steel & Power Ltd.

The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, as amended as the power generation capacity of the proposed expansion is beyond the threshold capacity of 500MW i.e. 2x525 MW and requires appraisal at Central level by the sectoral EAC in the Ministry.

The Committee observed that M/s Jindal Steel & Power Limited (JSP) recently purchased the partially constructed & not yet operational 2X525 MW coal based Thermal Power Plant at Angul, Odisha from the liquidator of the previous promoters of the project, M/s Monnet Power Company Limited (MPCL), appointed by the NCLT under Insolvency and Bankruptcy Code, 2016.

MoEF&CC vide letter no. J-13011/79/2007-IA. II(T) dated 29.06.2010 granted EC to MPCL and its validity was extended vide letters dated 27.05.2015 and 10.07.2017, thus extending validity till 28.06.2020. The EC lapsed in 2021 as per MoEF&CC's Notification no. S.O. 1807(E) dated 12.04.2022 and the additional one-year relaxation granted due to COVID vide MoEF&CC's Notification no. S.O. 4254(E) dated 27.11.2020. Renewal of EC was not applied for as the instant project was under NCLT. JSP applied for TOR on 13.04.2023 vide proposal no. IA/OR/THE/425646/2023. TOR were granted vide letter no. J-13011/79/2007-IA.II.(T) dated 12.06.2023 with Public consultation (written submission) as per the MoEF&CC's Notification S.O. 1247(E) dtd. 18.03.2021

The terms of reference granted on 12.06.2023 by the ministry without public hearing but with public consultation (written submission) as per Notification No. S.O. 1247 (E) dated 18.03.2021 in which following has been stated: *"the projects where construction and commissioning of proposed activities have not been completed within the validity period of the Environmental Clearance (EC) and a fresh application for EC has been submitted due to expiry of the said period of the EC, the concerned Expert Appraisal Committee or State Level Expert Committee, as the case may be, may exempt the requirement of public hearing subject to the condition that the project has been implemented not less than fifty percentage in its physical form or construction."* The committee noted that PP submitted M/s Tractebel Engineering Pvt. Ltd., Gurgaon, Haryana, India had prepared the "FINAL DUE DILIGENCE REPORT" for IDFC Bank Limited for the TPP on 12.05.2017 and according to report status of the project is 66% completed.

PP submitted that Odisha SPCB issued public notice in newspapers on 26.09.2023 inviting views, comments, suggestions/objections etc. relating to environmental aspects of the proposed project within 30 days of publishing of the notice. Total 677 representations were received directly and 5 representations were received through e-mail during the notice period. The Key issues raised during the public consultation (written submission) are related to generation of employment opportunity, provision of adequate environmental protection measures, drinking water supply, health care facilities school, community development etc. The total expenditure to address the issues/demand raised by public will be Rs. 211.5 Lakh to be distributed over 3 years. The Committee deliberated on the on the public comments and is of the view that there are activities which are also recurring in nature and accordingly PP shall keep the provision for the same for at least 10 years. The CSR budget shall be used for the same.

The EAC noted that though the project doesn't require additional land but 96.378 Ha of land still needs to be acquired by the project proponent. Out of 400 ha of project land requirement, there is the presence of 8.281 ha forest land of which Stage-I Forest Clearance was obtained vide letter No. 5-ORC175/2013-BHU dated 09.04.2014 Eastern Regional Office, Bhubaneswar of MoEF. The proposal for the transfer of FC to JSPL is under process at the State Govt. level. The Committee is of the view that PP shall get the FC transfer in its name.

It was further noted that as per Consolidated Guidelines and Clarifications issued under Van (SanrakshanEvamSamvardhan) Adhiniyam, 1980 And Van (SanrakshanEvamSamvardhan) Rules, 2023 wherein inter alia it has been mentioned that *"Where compliance of condition imposed in the 'In-principle' approval is awaited from the State Government or Union territory Administration, as the case may be, for more than two years, the 'In-Principle' approval shall be deemed to be null and void."* But as per provision of sub rule (8) of Rule 16 Van (SanrakshanEvamSamvardhan) Rules, 2023 wherein it has mentioned that:

Any proposal which has already been submitted under the provisions of the Forest (Conservation) Rules, 2003 or Forest (Conservation) Rules, 2022 and are currently under consideration of the various authorities in the State Government or Union territory Administration or the Central Government for grant of 'In-principle' or 'Final' approval shall be dealt in the following manner, namely:-

1. Any proposals granted 'In-principle' approval shall be dealt under the provisions of the extant rules and be processed and considered for grant of 'Final' approval without amending the conditions stipulated in the 'In-principle' approval; and

(ii) Any provision of the extant rules will be applicable on the proposals which are yet to be granted 'In-principle' approval under the Adhiniyam.

Therefore, the Committee is of the view that PP shall get the FC transferred in its name at the earliest. The EAC also noted that the Durgapur RF and Kaliakata RF, both adjacent to the project boundary, are other reserve forest areas and advised that the Project Proponent (PP) refrain from any activity that would encroach upon the designated forest land, given that none of the project's components are located within that area. Furthermore, the EAC suggested that the PP formally submit information regarding the forest land within the project area to the appropriate forest department for their review and consideration. Committee also noted that there are no National parks, Wildlife Sanctuary, Biospheres reserves within 10 km radius.

The Committee noted that there are 14 Schedule-1 species reported by the PP in the buffer area and the PCCF & HoFF, Govt. of Odisha vide letter dated. 23.08.2023 directed DFO to prepare a Site Specific Wildlife Conservation Plan for the TPP. The same is under preparation by DFO and the Company undertakes to comply with the subsequent directions from the PCCF & Chief Wildlife Warden on the same. The Committee is of the view that PP shall get WLCP approved from CWLW and the budget approved by CWLW for implantation of WLCP shall be deposited with the concerned authority.

The EAC noted that PP submitted that initially coal to be supplied through road by 38 T trucks from Utkal B1 (1.7 km, NW) or Utkal B2 (2.8 km, NW) or Utkal C (0.6 km, NW) coal mines of the company and within a period of 2 years the coal will be transported from mines to TPP by conveyor belt. The Committee is of the view that as of now around 66% work is completed and the remaining 34% is yet to be completed. Therefore, the PP have some time to initiate the work related to the installation of the conveyor belt before the commissioning of the project. The Committee is of the view that PP shall ensure that construction of the conveyor belt shall be taken up on priority and completed within 18 months of start of operations and further all mitigative measures to be taken for road transportation. The Committee is of the view that PP shall deploy BS-VI complaint tippers and as far as possible EV/CNG/LNG-based tippers will be used for the same.

The Committee noted that PP has proposed transportation of ash from plant to end-users by covered trucks/ bulkers. The Committee is of the view that transportation of the fly ash should be through bulkers only. Further, bottom Ash will be evacuated in slurry form through pipeline to the ash pond (0.7 km NW of plant). The Committee is of the view that PP while operating the plant shall ensure that the pipeline shall be inspected regularly for any leakages.

The Committee noted that PP has proposed to plant 3,30,000 Trees within a period of 5 years in area of 132 Ha in phased wise manner. The Committee is of the view that PP has acquired most of the land for plant and ash pond and only 96.378 Ha is yet to be acquired. Therefore, the Committee is of the view that plantation around the project boundary shall be completed within a period of one year and the remaining shall be covered in phased wise manner as proposed by PP.

The EAC noted that the capital investment on the environmental management plan is envisaged as Rs. 617.07 crores and recurring expenditure will be Rs. 59.3 crores /year which includes the provision of installation of FGD (about Rs. 400 crores capital cost and Rs. 40 recurring cost). Till installation of FGD the recurring EMP cost shall be Rs. 19.3 crores. The EMP also includes the green belt development cost. The Committee is of the view that for the protection of the environment if the same needs to be enhanced then PP shall do so.

The EAC noted that the PP reported that the direct employment generation from the proposed project will be 400 persons during operation. In addition to this, there will be about equal persons contractually employed by the project. In addition to this, there will be indirect employment. As the majority of unskilled and semi-skilled persons will be from surrounding villages, local population will be benefited. Social welfare activities shall be carried out by the project management in the surrounding villages. It will be for improving social infrastructure (road, drainage, water supply, school) or for activities desired by villagers. The amount earmarked shall be as per the corporate social responsibility



program which requires 2% of the average profit of the previous three years.

### 3.3.5. Recommendation of EAC

Recommended

### 3.3.6. Details of Environment Conditions

#### 3.3.6.1. Specific

Environmental Management	
1.	PP submitted that a minimal plastic waste (less than 1 ton per year) is anticipated from equipment packaging. This will be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016. The Committee is of the view that in pursuant to Ministry's OM dated 18/07/2022 PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with photograph on the measures taken shall also be included in the six monthly compliance report being submitted by PP.
2.	A detailed action plan regarding leachate handling shall be prepared and implemented in consultation with SPCB and the same shall be submitted to the Regional Office of the Ministry. Leachate shall be treated and reused. No treated leachate shall be discharged in any circumstances. Characteristics of Leachate and the treated leachate shall be monitored once in quarter and records shall be maintained.
3.	Oil and grease recovered from the treatment plant should be disposed only through authorized recyclers.
4.	Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.
5.	PP shall provide LEDs Solar lights, solar panel, availability of drinking water, internet connectivity and equip with smart classes, and other basic necessity to School present in 10 km radius of the plant boundaries.
6.	Monitoring of surface water quality and Ground Water quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall also be undertaken and results/findings submitted along with half yearly monitoring report.
7.	A well designed rain-water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed record kept of the quantity of water harvested every year and its use.
8.	No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/ operation of the power plant. A list of all small and large water bodies shall be prepared after physical survey within 10 km radius of the project. A detailed conservation plan for all these water bodies shall be prepared and submitted before the Regional Office of the Ministry within 3 months. Implementation status of conservation plan be submitted in 6 monthly compliance report.
9.	Watershed development plan shall be prepared in consultation with reputed government institute and implemented focusing on micro watershed development within 10 km radius of the project. Action taken report in this regard be submitted before regional office of the Ministry in 6 monthly compliance report.
10.	A detailed ecological monitoring and survey covering forestry, fisheries, wildlife and its habitat shall be done once in two years to assess the impacts of project on the local environment and ecology. Monitoring report shall be



	uploaded on the Parivesh Portal and a copy of the same be submitted to the regional office of MoEF&CC.
1 1.	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.
1 2.	PP shall submit the updated EMP plan activity budget wise by including i) Fog cannon installation: to mitigate dust emissions, ii) Increased greenbelt development budget: aligned with the expanded plan iii) 02 Continuous Ambient Air Quality Monitoring Stations (CAAQMS): for real-time air quality monitoring. And iv) disaster management system.
1 3.	EC is subject to obtaining transfer of Stage- I FC in name of M/s Jindal Steel & Power Ltd.
1 4.	Necessary permission for water withdrawal permission of 37 cusecs i.e. 3772 m3/hr from Samal Barrage existing on Brahamani River from Department of Water Resources, Odisha shall be obtained/transferred.
1 5.	Ash pond area and fly ash utilization shall be as per Fly Ash Notification issued by Ministry/ CPCB from time to time.
1 6.	PP while operating the plant shall ensure that the pipeline shall be inspected regularly for any leakages.
1 7.	PP shall get the WLCP approved from CWLW and the budget approved by CWLW for implantation of WLCP shall be deposited with the concerned authority.
1 8.	PP shall install solar power plant on roof top and alsoroad side poles within the project site will be lighting through solar power. [Refer section 4.3 c), Chapter4 of EIA]
1 9.	No effluent shall be mixed with rain water stream during Monsoon seasons. Treatment of effluent and quantity data shall be maintaining through the year.
2 0.	PP shall ensure that construction of the conveyor belt shall be taken up on priority and completed within 18 months of start of operations and further all mitigative measures to be taken for road transportation. Transportation of coal thereafter, from mines to TPP is through closed belt conveyor only.
2 1.	No BS-IV trucks shall be use for transportation, BS-VI complaint vehicle shall be purchased and preference shall be given to EV/CNG/LNG based trucks.
2 2.	Peripheral Green belt (Three row plantation) with Miyawaki plantation technique of 15 m thickness along the plant boundary shall be developed with more than 90% survival rate of the plant species focusing on Ash Dyke area.
2 3.	33% Plantation shall be carried out within the plant boundary apart from peripheral plantation in ash pond area.
2 4.	PP shall develop green belt within a period of one year from grant of EC and remaining plantation out of 3,30,000 trees shall be completed within a period of 2 years from the date of commissioning of the project. The budget earmarked for the plantation shall be kept in a separate account and audited annually. PP should annually submit the audited statement of expenditure along with proof of activities viz. photographs (before & after with geolocation date & time), details of expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation etc. to the Regional Office of MoEF&CC and on PARIVESH Portal as the case may be for the activities carried out during previous year.
2 5.	Extensive green cover within 2 km range of the plant boundary shall be developed. An action plan in this regard to be prepared in consultation with state forest department/expert institution and submitted before Regional Office of the Ministry within 3 months.

2 6.	Extensive green plantation shall be done in the school to bring down the emission level in the range of 10km radius of the project boundary with more than 90% survival rate. Green belt implementation status shall be submitted in six monthly compliance reports.
2 7.	24x7 online monitoring system for ambient air quality shall be established with its connectivity with SPCB and CPCB server. Stack monitoring shall be done through 24X7 online monitoring system.
2 8.	Adequate dust extraction system such as cyclones/bag filters and water spray system in dusty areas such as waste delivery points, transfer areas and other vulnerable dusty areas shall be provided along with an environment friendly sludge disposal system. Water Sprinkling on roads shall be done in every 6 hours in winter season and 3 hours in summer season of roads within 1 km range approaching the plant. A logbook shall be maintained for the activity and be in six-monthly compliance report.
2 9.	LED display of air quality (Continuous Online monitoring) shall be installed on the roadside (within 1 km range) and nearby hotspots viz. residential colony, Schools Hospitals; maintenance of devices shall be done on regular basis.
3 0.	Everyday cleaning of road/Paved roads/schools/ hospitals within 5 km range of plant site shall be ensured throughout the year through vaccum based vehicle.
3 1.	Environment Audit of plant shall be done annually and report shall be submitted to Regional office of the Ministry.
3 2.	Project proponent shall explore the use of treated sewage water from the Sewage Treatment Plant of Municipality / local bodies/ similar organization located within 50km radius of the proposed power project to minimize the water drawl from surface water bodies.
<b>Miscellaneous</b>	
1.	<p>PP shall submit an undertaking on following within 30 days of grant of EC:</p> <ul style="list-style-type: none"> <li>Ambient air quality data shall be uploaded on CPCB server uninterruptedly through continuous monitoring station.</li> <li>For both the existing unit of TPP FGD will be installed by May, 2024.</li> <li>Ground water analysis including heavy metal and micro bacterial study shall be done on regular basis and same shall be submitted in six monthly compliance report.</li> <li>Legacy ash shall be completely utilized within 1 year after the start of operations for construction of roads by NHAI/ brick making etc.</li> <li>To comply with all the conditions in which” PP has assured to comply” written in the review report of IRO dated 08.01.2024 on the action taken report.</li> </ul>
2.	An Environmental Cell headed by the Environment Manger with postgraduate qualification in environmental science/environmental engineering, shall be created. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.
3.	Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
4.	All necessary clearance from the concerned Authority, as may be applicable should be obtained prior to commencement of project or activity.
<b>Socio-economic</b>	
1.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the

	Factories Act.
2.	A multi-specialty Hospital with 100 beds shall be established and managed by the PP to cater the need of population living within 10 km. The project affected families shall be given free of cost treatment.
3.	A 10+2 Grade school with capacity of at least 500 students with well-equipped modern science practical lab, computer lab and other necessary infrastructure shall be established to provide education facilities in the area. The students from project affected families shall be given free of cost education.
4.	A vision document comprising prospective plan for implementation of various CER activities, plantation programme outside the project cover area, rejuvenation and conservation of water bodies within 5km radius of the project cover area, creation of sacred groves etc. shall be prepared and submitted to the Regional Office of the Ministry within 6 months. Implementation status of the same shall be reported to the Regional office in 6 monthly compliance report.
5.	The establishment of a robust public grievance redressal mechanism to address concerns and complaints from local communities regarding the power plant's operations, environmental impacts, or social issues shall be developed. A Senior Officer shall review the functioning of the mechanism twice in a month.
6.	Epidemiological Study among population within 5 km radius of project cover area shall be carried out on regular interval (Once in two year) through independent agency. Necessary measures shall be taken as per findings of study in consultation with district administration. Action taken report shall be submitted to the Regional Office of the Ministry.
7.	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of Environmental Clearance for undertaking the CER activities, committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.
8.	The budget earmarked for addressing the issues raised public consultation (written submission) is Rs. 211.5 Lakh to be distributed over 3 years. The PP shall extend the same for ten years and the budget of CSR may be used for the same. The amount shall be kept in a separate account and audited annually. PP shall submit the activities undertaken with proof and audited statement of expenditure to concerned RO, MoEF&CC every year for the activities carried out in previous year.

### 3.3.6.2. Standard

1(d)	<b>Thermal Power Plants</b>
<b>Air quality monitoring and Management</b>	
1.	Flue Gas Desulphurisation System shall be installed based on Lime/Ammonia dosing to capture Sulphur in the flue gases to meet the SO <sub>2</sub> emissions standard of 100 mg/Nm <sup>3</sup> .
1.	Appropriate Air Pollution Control measures (DEs/DSs) be provided at all the dust generating sources including sufficient water sprinkling arrangements at various locations viz., roads, excavation sites, crusher plants, transfer points, loading and unloading areas, etc.
1.	Adequate dust extraction/suppression system shall be installed in coal handling, ash handling areas and material transfer points to control fugitive emissions.
1.	Continuous Ambient Air Quality monitoring system shall be set up to monitor common/criteria pollutants from the flue gases such as PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> within the plant area at least at one location. The monitoring of other locations (at least three locations outside the plant area covering upwind and downwind directions at an angle of 120° each) shall be carried out manually.

1.	Exit velocity of flue gases shall not be less than 20-25 m/s. Mercury emissions from stack shall also be monitored periodically.
1.	Stacks of prescribed height ____m shall be provided with continuous online monitoring instruments for SOX, NOx and Particulate Matter as per extant rules.
1.	High efficiency Electrostatic Precipitators (ESPs) shall be installed in each unit to ensure that particulate matter (PM) emission to meet the stipulated standards of 30 mg/Nm <sup>3</sup> .
1.	Selective Catalytic Reduction (SCR) system or the Selective Non-Catalytic Reduction (SNCR) system or Low NOX Burners with Over Fire Air (OFA) system shall be installed to achieve NOX emission standard of 100 mg/Nm <sup>3</sup> .
<b>Ash content/mode of transportation of coal</b>	
1.	EC is given on the basis of assumption of ____% of ash content and ____km distance of transportation in rail/road/conveyor/any other mode. Any increase of %ash content by more than 1 percent, and/or any change in transportation mode or increase in the transport distance (except for rail) require application for modifications of EC conditions after conducting the 'incremental impact assessment' and proposal for mitigation measures.
<b>Common to intake and effluent</b>	
1.	In case of Coastal Power Plants, the Mangrove plantation shall be taken up in an area of .....ha, along the coast/ on the banks of ..... Estuary.
1.	The pipeline shall be buried below the seabed at a depth to ensure its stability under rough sea conditions particularly during cyclone / tsunami. The depth of burial will depend on the seafloor strata but normally the top of the pipeline shall be at least 1 m below the bed level. In the surf and intertidal zones, the pipeline shall be buried below the maximum scour level.
1.	In case of open channel, the channel shall be constructed as per the recommendations of State Coastal Zone Management Authority (SCZMA).
1.	If the substratum is rocky the pipeline may be anchored to the rock provided the geology of the area satisfactorily supports the structure which shall be ascertained through geo-technical investigations.
1.	Exposed pipeline section and riser shall be protected by armour stone from waves, boats anchoring, fishing activities etc.
1.	The location of the riser & diffuser shall be marked with a solar lighted buoy to avoid accidents from boats.
1.	Marine / Sea water quality shall be monitored at effluent release location at the center. Parameters to be monitored shall be as follows: a. Physico-chemical: Temperature, Salinity, pH and Dissolved Oxygen. b. Biological: Primary Productivity, Phytoplankton (Chlorophyll a, Phaeophytin, Population, Species), Zooplankton (Biomass, Population, Species) and Benthos (Biomass, Population, Species).
<b>Corporate Environmental Responsibility (CER) activities</b>	
1.	CER activities will be carried out as per OM No. 22-65/2017-IA.III dated 30.9.2020 or as proposed by the PP in reference to Public Hearing or as earmarked in the EIA/EMP report along with the detailed schedule of implementation with appropriate budgeting.
<b>Effluent Release</b>	
1.	The effluent shall be released through a properly designed multiport diffuser above the seabed to facilitate its efficient initial mixing with the receiving seawater.



1.	Continuous online monitoring system for Temperature and Salinity shall be installed to monitor the quality of effluent.
1.	Efficacy of the diffuser shall be ascertained at least once in 2 years through scientific studies and corrective actions such as cleaning of the diffuser from marine growth, removal of silt deposits, etc. shall be taken up, if warranted.
1.	The site selected based on mathematical modeling shall ensure absence of recirculation of the effluent plume in the seawater intake area under all tidal conditions.
1.	The location of the diffuser shall be marked with a solar lighted buoy to avoid accidents.
1.	The effluent when released at the selected location shall attain sufficient dilution so that near ambient water quality (particularly temperature and salinity) is attained within 500 m from the release location, at low tide.
1.	Use of antifouling agents like chlorine / hypochlorite, shall be carefully controlled. The chlorine concentration shall not exceed 0.2 ppm at the effluent release point.
1.	At the effluent release point, maximum temperature of the discharge water shall not be more than 5oC and salinity shall not exceed 50 ppt with respect to that of the ambient seawater.
<b>Green belt and Biodiversity conservation</b>	
1.	In-situ/ex-situ Conservation Plan for the conservation of flora and fauna should be prepared and implemented.
1.	Suitable screens shall be placed across the intake channel to prevent entrainment of life forms including eggs, larvae, juvenile fish, etc., during extraction of seawater.
1.	Green belt shall be developed in an area of 33% of the total project with indigenous native tree species in accordance with CPCB guidelines. The green belt shall inter-alia cover an entire periphery of the plant.
<b>Human Health Environment</b>	
1.	Baseline health status within study area shall be assessed and report be prepared. Mitigation measures should be taken to address the endemic diseases.
1.	Impact of operation of power plant on agricultural crops, large water bodies (as applicable) once in two years by engaging an institute of repute. The study shall also include impact due to heavy metals associated with emission from power plant.
1.	Sewage Treatment Plant shall be provided for domestic wastewater.
1.	Bi-annual Health check-up of all the workers is to be conducted. The study shall take into account of chronic exposure to noise which may lead to adverse effects like increase in heart rate and blood pressure, hypertension and peripheral vasoconstriction and thus increased peripheral vascular resistance. Similarly, the study shall also assess the health impacts due to air polluting agents.
<b>Marine facilities</b>	
1.	As the seawater intake systems are required for the plant fall in CRZ area, recommendations from State Coastal Zone Management Authority (SCZMA) as per CRZ Notification shall be implemented.
1.	Marine intake and outfall pipelines shall be located as per the recommendations State Coastal Zone Management Authority (SCZMA).
<b>Monitoring of compliance</b>	

1.	Environment Cell (EC) shall be constituted by taking members from different divisions, headed by a qualified person on the subject, who shall be reporting directly to the Head of the Project.
1.	Energy and Water Audit shall be conducted at least once in two years and recommendations arising out of the Report should be followed. A report in this regard shall be submitted to Ministry's Regional Office.
1.	Monitoring of Carbon Emissions from the existing power plant as well as for the proposed power project shall be carried out annually from a reputed institute and report be submitted to the Ministry's Regional Office.
1.	Energy Conservation Plan to be implemented as envisaged in the EIA / EMP report. Renewable Energy Purchase Obligation as set by MoP/State Government shall be met either by establishing renewable energy power plant (such as solar, wind, etc.) or by purchasing Renewable Energy Certificates.
1.	Resettlement & Rehabilitation Plan as per the extant rules of Govt. of India and respective State Govt. shall be followed, if applicable.
1.	The project proponent shall (Post-EC Monitoring): a. send a copy of environmental clearance letter to the heads of Local Bodies, Panchayat, Municipal bodies and relevant offices of the Government; b. upload the clearance letter on the web site of the company as a part of information to the general public. c. inform the public through advertisement within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment, Forest and Climate Change (MoEF&CC) at <a href="http://parviesh.nic.in">http://parviesh.nic.in</a> . d. upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same periodically; e. monitor the criteria pollutants level namely; PM (PM10 & PM2.5) in case of ambient AAQ, SO <sub>2</sub> , NO <sub>x</sub> (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company; f. submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB; g. submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company; h. inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project and the date of commencement of the land development work.
1.	Environmental Audit of the project be taken up by the third party for preparation of Environmental Statement as per Form-V & Conditions stipulated in the EC and report be submitted to the Ministry.
<b>Noise pollution and its control measures</b>	
1.	Persons exposed to high noise generating equipment shall use Personal Protective Equipment (PPE) like earplugs/ear muffs, etc.
1.	The Ambient Noise levels shall meet the standards prescribed as per the Noise Pollution (Regulation and Control) Rules, 2000.
1.	Periodical medical examination on hearing loss shall be carried out for all the workers and maintain audiometric record and for treatment of any hearing loss including rotating to non-noisy/less noisy areas.
<b>Risk Mitigation and Disaster Management</b>	
1.	Safety management plan based on Risk Assessment shall be prepared to limit the risk exposure to the workers within the plant boundary.
1.	Storage facilities for auxiliary liquid fuel such as LDO and HFO/LSHS shall be made as per the extant rules in the plant area in accordance with the directives of Petroleum & Explosives Safety Organisation (PESO). Sulphur Content in the liquid fuel should not exceed 0.5%.

1.	Regular mock drills for on-site emergency management plan and Integrated Emergency Response System shall be developed for all kind of possible disaster situations.
1.	Ergonomic working conditions with First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.
1.	Adequate safety measures and environmental safeguards shall be provided in the plant area to control spontaneous fires in coal yard, especially during dry and humid season.
<b>Sea Water Intake</b>	
1.	In all tide conditions (particularly at spring low tides) the riser head must be flooded with the required submergence of seawater above its top.
1.	The withdrawal of seawater shall be preferably through a pipeline with a riser equipped with a velocity cap arrangement and bar screen to arrest the impingement of large marine organisms.
1.	Seawater intake system shall be so designed and constructed to ensure sufficient seawater in terms of quantity and quality.
<b>Statutory compliance</b>	
1.	Part C of Schedule II of Municipal Solid Wastes Rules, 2016 dated 08.04.2016 as amended from time to time shall be complied for power plants based on Municipal Solid Waste.
1.	Emission Standards for Thermal Power Plants as per Ministry's Notification S.O. 3305(E) dated 7.12.2015, G.S.R.593(E) dated 28.6.2018 and as amended from time to time shall be complied.
1.	Groundwater shall not be drawn during construction of the project. In case, groundwater is drawn during construction, necessary permission be obtained from CGWA.
1.	No Objection Certificate from Ministry of Civil Aviation be obtained for installation of requisite chimney height and its siting criteria for height clearance.
1.	The recommendation from Standing Committee of NBWL under the Wildlife (Protection) Act, 1972 should be obtained, if applicable.
1.	Thermal Power Plants other than the power plants located on coast and using sea water for cooling purposes, shall achieve specific water consumption of 2.5 m <sup>3</sup> /MWh and Zero effluent discharge.
1.	MoEF&CC Notifications on Fly Ash Utilization S.O. 763(E) dated 14.09.1999, S.O. 979(E) dated 27.08.2003, S.O. 2804(E) dated 3.11.2009, S.O. 254(E) dated 25.01.2016 as amended from time to time shall be complied.
1.	MoEF&CC Notification G.S.R 02(E) dated 2.1.2014 as amended time to time regarding use of raw or blended or beneficiated/washed coal with ash content not exceeding 34% shall be complied with, as applicable.
<b>Waste management</b>	
1.	Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry/Medium Concentration Slurry/Lean Concentration Slurry method. Ash water recycling system shall be set up to recover supernatant water.
1.	Ash pond shall be lined with impervious liner as per the soil conditions. Adequate dam/dyke safety measures shall also be implemented to protect the ash dyke from getting breached.
1.	Solid waste management should be planned in accordance with extant Solid Waste Management Rules, 2016.



1.	Toxicity Characteristic Leachate Procedure (TCLP) test shall be conducted for any substance, potential of leaching heavy metals into the surrounding areas as well as into the groundwater.
1.	In case of waste-to-energy plant, major problems related with environment are fire smog in MSW dump site, foul smell and impacts to the surrounding populations. Therefore, the following measures are required to be taken up: i) Water hydrant at all the dumpsites of MSW area to be provided so that the fire and smog could be controlled. ii) Sprayer like microbial consortia may be provided for arresting the foul smell emanating from MSW area.
1.	Fly ash shall be collected in dry form and ash generated shall be used in phased manner as per provisions of the Notification on Fly Ash Utilization issued by the Ministry and amendment thereto. By the end of 4th year, 100% fly ash utilization should be ensured. Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry. Mercury and other heavy metals (As, Hg, cr, Pb, etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. Flyash utilization details shall be submitted to concerned Regional Office along with the six-monthly compliance reports and utilization data shall be published on company's website.
<b>Water quality monitoring and Management</b>	
1.	In case of the water withdrawal from river, a minimum flow 15% of the average flow of 120 consecutive leanest days should be maintained for environmental flow whichever is higher, to be released during the lean season after water withdrawal for proposed power plant.
1.	Induced/Natural draft closed cycle wet cooling system including cooling towers shall be set up with minimum Cycles of Concentration (COC) of 5.0 or above for power plants using fresh water to achieve specific water consumption of 2.5 m <sup>3</sup> /MWhr. (Or) Induced/Natural draft open cycle cooling system shall be set up with minimum Cycles of Concentration (COC) of 1.5 or above for power plants using sea water.
1.	Sewage generation of .....KLD will be treated by setting up Sewage Treatment plant to maintain the treated sewage characteristics of pH: 6.5-9.0; Bio-Chemical Oxygen Demand (BOD): 30 mg/l; Total Suspended Solids: 100 mg/l; Fecal Coliforms (Most Probable Number): <1000 per 100 ml.
1.	Wastewater generation of .....KLD from various sources (viz. cooling tower blowdown, boiler blow down, wastewater from ash handling, etc) shall be treated to meet the standards of pH: 6.5-8.5; Total Suspended Solids: 100 mg/l; Oil & Grease: 20 mg/l; Copper: 1 mg/l; Iron: 1 mg/l; Free Chlorine: 0.5; Zinc: 1.0 mg/l; Total Chromium: 0.2 mg/l; Phosphate: 5.0 mg/l;
1.	Based on the commitment made by the Project Proponent, Sewage Treatment Plants within the radius of 50 km from proposed project, the treated sewage of .....KLD from STP ..... (name) shall be used as an alternative to the fresh water source to minimize the fresh water drawl from surface water bodies.
1.	Hot water dispensed from the condenser should be adequately cooled to ensure the temperature of the released surface water is not more than 5 degrees Celsius above the temperature of the intake water.
1.	The treated effluents emanating from the different processes such as DM plant, boiler blow down, ash pond/dyke, sewage, etc. conforming to the prescribed standards shall be re-circulated and reused. Sludge/ rejects will be disposed in accordance with the Hazardous Waste Management Rules.
1.	Regular (at least once in six months) monitoring of groundwater quality in and around the ash pond area including presence of heavy metals (Hg, Cr, As, Pb, etc.) shall be carried out as per CPCB guidelines. Surface water quality monitoring shall be undertaken for major surface water bodies as per the EMP. The data so obtained should be compared with the baseline data so as to ensure that the groundwater and surface water quality is not adversely impacted due to the project & its activities.
1.	Rainwater harvesting in and around the plant area be taken up to reduce drawl of fresh water. If possible, recharge of groundwater to be undertaken to improve the ground water table in the area.
1.	Records pertaining to measurements of daily water withdrawal and river flows (obtained from Irrigation Department/Water Resources Department) immediately upstream and downstream of withdrawal site shall be



	maintained.
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### 3.4. Agenda Item No 4:

#### 3.4.1. Details of the proposal

<b>Expansion of Lignite Based Super Critical CFBC Thermal Power Plant from “1080 MW To 2160 MW” by Installing 1080MW (3 X 360 MW) Unit in existing 1080 MW plant at Bhadresh, Barmer, Rajasthan by JSW ENERGY BARMER LIMITED located at BARMER,RAJASTHAN</b>			
<b>Proposal For</b>		Fresh ToR	
<b>Proposal No</b>	<b>File No</b>	<b>Submission Date</b>	<b>Activity (Schedule Item)</b>
<a href="#">IA/RJ/THE/459867/2024</a>	J-13011/58/2006-IA-II (T)	01/02/2024	Thermal Power Plants (1(d))

#### 3.4.2. Project Salient Features

**5.5.1** The proposal is for grant of Terms of Reference (ToR) to the project for Expansion of Lignite Based Super Critical CFBC Thermal Power Plant from “1080 MW to 2160 MW” by Installing 1080MW (3 X 360 MW) Unit in existing land area 479.9 Ha located at Village BhadresGandhav, District Barmer, Rajasthan by M/s Jsw Energy Barmer Limited.

**5.5.2** The Project Proponent and the accredited Consultant M/s. EQMS Global Pvt. Ltd., (Accreditation valid till: 23/11/2025) made a detailed presentation on the salient features of the project and informed that:

1. The proposal is for ToR to the project for Expansion of lignite based super critical CFBC thermal power plant from “1080 MW to 2160 MW” by installing 1080 MW (3 x 360 MW) unit located at Village Bhadresh, Tehsil & Dist. Barmer, Rajasthan by M/s JSW Energy (Barmer) Limited (JSWEBL) (Subsidiary of JSW Energy Ltd.).

1. All Thermal Power Plants 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).
2. The salient features of the project are as follows:

##### 1. Project details:

Name of the Proposal	Expansion of Lignite Based Super Critical CFBC Thermal Power Plant from “1080 MW To 2160 MW” by Installing 1080 MW (3 X 360 MW) Unit in existing 1080 MW plant at Bhadresh, Barmer, Rajasthan.
Proposal No.	IA/RJ/THE/459867/2024
Location	Village & Post-Bhadresh, District-Barmer, Rajasthan
Company’s Name	M/s JSW Energy (Barmer) Limited (JSWEBL)
Accredited Consultant and certificate no.	M/s EQMS Global Pvt. Ltd. (NABET Accreditation Number: NABET/EIA/2225/RA 0303 Valid Upto-23.11.2025)

Inter- state issue in volved	Not Applicable
Seismic zone	Zone – III (Moderate Risk Zone)

### 1. Category details:

Category of the project	1 (d)Thermal Power Plants
Capacity	Existing – 1080 MW Expansion – 1080 MW (3X360 MW) <b>Cumulative Capacity – 2160 MW</b>
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	No

### 1. Project description:

<p>If expansion, the details of ECs (including amendments and extension of validity) of existing Units etc.</p>	S. No.	Type of Approval	F. No./ Order No.	Details
	1	Water Permission	JSW EBL has agreement of 80 Cusecs of water from Indira Gandhi Nahar Pariyojana through Government of Rajasthan	
	2.	Environmental Clearance	F. No. J-13011/58/2006-IA-II(T) dt:20th July 2007	8X125 (1000) MW Coal Based Thermal Power Plant
	3.	EC Amendment/ Extension	File no: J-13011/58/2006-IA. II(T) dt: 19 Nov-2009	8X135 (1080) MW Coal Based Thermal Power Plant
	4.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5821-5823 dated 5 Dec-2023	270 MW Unit – 1 & 2

	<table><tr><td>5.</td><td>Consent to Operate</td><td>Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5925-5927 dated 8 Dec-2023.</td><td>270 MW Unit – 3 &amp; 4</td></tr><tr><td>6.</td><td>Consent to Operate</td><td>Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6524-6526 Dt; 10 Feb-2022</td><td>270 MW Unit – 5 &amp; 6</td></tr><tr><td>7.</td><td>Consent to Operate</td><td>Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6527-6529 Dt; 10 Feb-2022</td><td>270 MW Unit – 7 &amp; 8</td></tr><tr><td>8.</td><td>Certified EC Compliance</td><td>29-Aug-2022 by IR O Jaipur</td><td>1080 MW (8 X135 MW) Unit 1 to 8</td></tr></table>	5.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5925-5927 dated 8 Dec-2023.	270 MW Unit – 3 & 4	6.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6524-6526 Dt; 10 Feb-2022	270 MW Unit – 5 & 6	7.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6527-6529 Dt; 10 Feb-2022	270 MW Unit – 7 & 8	8.	Certified EC Compliance	29-Aug-2022 by IR O Jaipur	1080 MW (8 X135 MW) Unit 1 to 8
5.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5925-5927 dated 8 Dec-2023.	270 MW Unit – 3 & 4														
6.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6524-6526 Dt; 10 Feb-2022	270 MW Unit – 5 & 6														
7.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6527-6529 Dt; 10 Feb-2022	270 MW Unit – 7 & 8														
8.	Certified EC Compliance	29-Aug-2022 by IR O Jaipur	1080 MW (8 X135 MW) Unit 1 to 8														
Amendments granted, if Yes details	Yes <table><tr><td>EC Amendment/Extension</td><td>File no: J-13011/58/2006-IA. II(T) dt:19 Nov-2009</td><td>8X125 (1000) MW to 8X135 (1080) MW Coal Based Thermal Power Plant</td></tr></table>	EC Amendment/Extension	File no: J-13011/58/2006-IA. II(T) dt:19 Nov-2009	8X125 (1000) MW to 8X135 (1080) MW Coal Based Thermal Power Plant													
EC Amendment/Extension	File no: J-13011/58/2006-IA. II(T) dt:19 Nov-2009	8X125 (1000) MW to 8X135 (1080) MW Coal Based Thermal Power Plant															
Expansion / Green Field (new): (IPP / Merchant / Captive):	Expansion																
If expansion, the date of latest monitoring done by the Regional Office (R.O) of MoE F&CC for compliance of the conditions stipulated in the environmental and CRZ clearances of the previous phases. A certified copy of the latest R.O. monitoring report shall also be submitted.	Shall be taken after grant of TOR.																
Specific webpage address where all EC related documents (including monitoring and compliance related reports/documents) of the specific project under consideration are/will be available. Also contact details of PP's officer responsible for updating this webpage/information.	-																

Co-ordinates of all four corners of TPP Site:	<b>A:</b> 25°54'23.25"N , 71°19'5.22"E <b>B:</b> 25°54'27.92"N , 71°20'19.46"E <b>C:</b> 25°53'11.37"N , 71°20'20.39"E <b>D:</b> 25°53'7.52"N , 71°19'9.69"E
Average height of: (a) TPP site, (b) Ash pond site etc. above MSL	(a) 200-210 m (b) 210 m
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:	Proposed Rs. 7560 Crores
Employment Potential for entire project/plant and employment potential for the proposed amendment (specify number of persons and quantitative information).	<b>During construction phase:</b> 1000 nos. of workers <b>During Operation Phase:</b> 180 nos. employees
Benefits of the project (specify quantitative information)	<ul style="list-style-type: none"> <li>It will fulfill the demand supply gap of power.</li> <li>It will ease the dependency of import of power within the state.</li> <li>It is expected to generate additional revenue for state/central government.</li> <li>It will generate employment.</li> </ul>

#### 1. Electricity generation capacity:

Capacity & Unit Configurations:	Existing Unit: 8 x 135 MW (1080 MW) Proposed Unit: 3 x 360 MW (1080 MW)
Generation of Electricity Annually (Proposed Project)	Net Generation: 7258 MUs per year (85% PLF)

#### 1. Details of fuel and Ash disposal

Fuel to be used:	Lignite Coal
Quantity of Fuel required per Annum:	6.65 MMT/annum for 3X360 MW TPP.
Coal Linkage / Coal Block: (If Block allotted, status of EC & FC of the Block)	JSWEBL presently has a fuel supply agreement with Barmer Lignite Mining Company Limited for supply of lignite from the captive mines of Jalipa and Kapurdi lignite mines for the existing operational plant of 8x135 MW. For proposed expansion, the lignite shall be supplied from the same source. Lignite is being transported through conveyor belt, same will be followed for the proposed expansion.



	Coal linkage agreement was made with Barmer Lignite mining company limited on 19.01.2011.
Details of mode of transportation of coal from coal source to the plant premises along with distances	Mode of transportation: Conveyor Belts Distance from Source: Around 2.5 Kms Source of Lignite coal: Jalipa-Kapurdi Lignite Mines
Fly Ash Disposal System Proposed	Yes (Fly ash shall be utilized for cement & brick making)
Ash Pond/ Dyke (Area, Location & Co-ordinates) Average height of area above MSL (m)	Ash Pond: Existing Ash Pond area: 44 acres (No additional ash pond required). Co-ordinate: 25°53'11.90"N & 71°19'26.31"E 25°53'40.54"N & 71°20'18.62"E Average height of area above MSL (m): 210 m
Quantity of a. Fly Ash to be generated. b. Bottom Ash to be generated:	Quantity of a. Fly Ash to be generated: 7,449.6 TPD. b. Bottom Ash to be generated: 1,862.4 TPD
Fly Ash utilization (details)	It shall be sent to Cement Manufacturer.
Stack Height (m) & Type of Flue	Stack Height: 125 m Type of Flue: Tri Flue

#### 1. Water Requirement:

Source of Water:	Indira Gandhi Nahar Pariyojana (IGNP) canal
Quantity of water requirement:	Existing – 90720 KLD Expansion – 62900 KLD
Distance of source of water from Plant:	185 Km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	No
Mode of conveyance of water:	Pipeline
Status of water linkage:	Obtained
(If source is Sea water) Desalination Plant	No
Mode / Management of Brine:	Not Applicable
Cooling system	Cooling Towers

#### 1. Land Area Breakup:

**Land Requirement:**

- a) TPP Site
- b) Ash Pond
- c) Township
- d) Railway Siding & Others
- e) Raw Water Reservoir
- f) Green Belt
- g) others
- Total (if expansion state additional land requirement)

S. No.	Particulars	Area of Existing plant (Ha.)	Area of Proposed plant (Ha.)
1.	Main Plant	16.18	16.18
2.	Water system and treatment system	8.09	8.09
3.	Lignite handling, ash handling, rail, road	16.18	16.18
4.	Green belt for power plant	159.44	0
5.	Ash Pond	17.80	0
6.	Other	167.13	54.63
	<b>Total</b>	<b>384.82</b>	<b>95.08</b>

\*Available land of 95.08 Ha. (235 acres) out of existing total land 479.9 Ha. (1186 acres) will be utilized for proposed 1080 MW (3 X 360 MW). No additional land is required.

**Status of Land Acquisition:**

Acquired

**Status of the project:**

If under construction phase: please specify the reasons for delay, works completed till date and balance works along with expected date of completion.

If under operation phase, date of commissioning (COD) of each unit. Whether the plant was under shutdown since commissioning, details and reasons.

Existing project in under operation and the Project is commissioned in 2009. Latest CTO was granted from RSPCB as details below;

Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/51 53(1)/2023-2024/5821-5823 dated 5 Dec-2023	270 MW Unit – 1 & 2
Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/51 53(1)/2023-2024/5925-5927 dated 8 Dec-2023.	270 MW Unit – 3 & 4
Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1 )/2008-2009/6524-6526 Dt; 10 Feb-2022	270 MW Unit – 5 & 6
Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1 )/2008-2009/6527-6529 Dt; 10 Feb-2022	270 MW Unit

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		- 7 & 8															
<p>Break-Up of land-use of TPP site:</p> <p>a. Total land required for project components.</p> <p>b. Private land</p> <p>c. Government land</p> <p>d. Forest Land</p>	<p>Break-Up of land-use of TPP site:</p> <table border="1"> <thead> <tr> <th></th> <th>Land Available</th> <th>Land Required</th> <th>Total Land</th> </tr> </thead> <tbody> <tr> <td>Private Land</td> <td>479.95</td> <td>0</td> <td>479.95</td> </tr> <tr> <td>Government Land</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Forest Land</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>		Land Available	Land Required	Total Land	Private Land	479.95	0	479.95	Government Land	0	0	0	Forest Land	0	0	0
	Land Available	Land Required	Total Land														
Private Land	479.95	0	479.95														
Government Land	0	0	0														
Forest Land	0	0	0														

#### 1. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Remark
Reserve Forest/Protected	No	-
Forest Land	No	-
National Park	No	-
Wildlife Sanctuary	No	-
Archaeological sites monuments/historical temples etc.	No	
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:	No	-
Additional information (if any)	No	-

#### 1. Court case details:

Any litigation/ Court Case pertaining to the project	No
Is the proposal under any investigation? If so, details thereof.	No
Any violation case pertaining to the project:	No
Additional information (if any)	No

1. Effluent of 6855 KLD quantity during expansion will be treated through 8500 KLD Effluent Treatment Plant. The plant will be based on Zero Liquid Discharge system.

1. Power requirement during expansion will be 5 MW for Construction & 40 MW for Commissioning and will be met from own existing plant. Existing unit has 6 DG sets of 1000 KVA capacity, additionally 2X500 KVA DG sets will be used as standby during power failure. Stack (height 30 m) will be provided as per CPCB norms to the proposed DG sets.

1. Existing Plant has 8 no's Lignite Fired Boilers each having steam generation capacity of 440 TPH. Additionally, proposed project will have 3 no's Lignite Fired Boilers each having steam generation capacity of 1158 TPH. For the Proposed project, Electrostatic Precipitator (ESP) with a stack of height of 125 m will be installed for controlling the particulate emissions within the statutory limit of 30 mg/Nm<sup>3</sup> for the proposed boilers (Applicable for thermal sector projects).

#### 3.4.3. Deliberations by the committee in previous meetings

N/A

#### 3.4.4. Deliberations by the EAC in current meetings

##### The EAC during deliberations noted the following:

The proposal is for grant of Terms of Reference (ToR) to the project for conducting EIA study for proposed construction for Expansion of Lignite Based Super Critical CFBC Thermal Power Plant from "1080 MW to 2160 MW" by Installing 1080MW (3 X 360 MW) Unit in existing land area 479.9 Ha located at Village BhadresGandhav, District Barmer, Rajasthan by M/s JSW Energy Barmer Limited.

The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, as amended as the power generation capacity of proposed expansion is beyond threshold capacity of 500MW i.e. 1080 MW and requires appraisal at Central level by the sectoral EAC in the Ministry.

The EAC has noted that the Ministry of Power (MoP) guidelines specify the utilization of solely Indian-manufactured equipment in thermal power stations. Consequently, the PP has communicated to the EAC that they have conducted a rating for a proposed unit utilizing Circulating Fluidized Bed Combustion (CFBC) technology, which entails equipment manufactured in China.

The EAC has requested the PP to adjust the capacity of the proposed power plant in line with guidelines from Bharat Heavy Electricals Limited (BHEL), an Indian company, and to prepare the Pre-Feasibility Report (PFR) and other necessary details accordingly.

The proposal is therefore *deferred* on the above lines

#### 3.4.5. Recommendation of EAC

Deferred for ADS

#### 4. Any Other Item(s)

N/A



**5. List of Attendees**

Sr. No.	Name	Designation	Email ID	Remarks
1	Dr Sharad Singh Negi	Chairman, EAC	sha*****@gmail.com	
2	Dr Santoshkumar Hampannavar	Member (EAC)	san*****@yahoo.com	
3	Shri K B Biswas	Member (EAC)	bis*****@gmail.com	
4	Dr Nazimuddin	Member (EAC)	naz*****@nic.in	
5	Shri Mahi Pal Singh	Member (EAC)	mps*****@nic.in	
6	Sh Inder Pal Singh Matharu IFS	Member (EAC)	mat*****@gmail.com	
7	Sh Lalit Kapur	Member (EAC)	lka*****@yahoo.com	
8	Dr Umesh Jagannathrao Kahalekar	Member (EAC)	uka*****@gmail.com	
9	Sh Savalge Chandrasekhar	Member (EAC)	sav*****@gmail.com	
10	Prof Shyam Shanker Singh	Member (EAC)	sin*****@gmail.com	
11	Dr Vinod Agrawal	Member (EAC)	vin*****@yahoo.com	
12	Shri Harmeet Sahaney	Member (EAC)	har*****@imd.gov.in	Absent
13	Prof R M Bhattacharjee	Member (EAC)	rmb*****@iitism.ac.in	Absent
14	Amit Vashishtha	Scientist E	ami*****@nic.in	

## ANNEXURE

### MINUTES OF THE 05<sup>TH</sup> MEETING OF THE EXPERT APPRAISAL COMMITTEE (EAC) FOR ENVIRONMENTAL IMPACT ASSESSMENT(EIA) OF THERMAL POWER PROJECTS HELD ON 14<sup>TH</sup> FEBRUARY, 2024

The 5<sup>th</sup> Meeting of the EAC (Thermal Power) organized by the Ministry of environment, Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi was held on 14<sup>th</sup> February 2024 in Online Mode, Indira Paryavaran Bhawan (MoEF&CC) under the Chairmanship of Dr. Sharad Singh Negi. The list of Members who participated in the meeting is at **Annexure I**.

#### **Agenda Item No.5.1: Confirmation of the Minutes of the 4<sup>th</sup>EAC meeting**

The Minutes of the 4<sup>th</sup>EAC (Thermal Power) meeting held on 18<sup>th</sup> January 2024 were confirmed in the meeting.

#### **Agenda Item No.5.2**

**2 x 525 MW Coal Based Thermal Power Plant in an area of 400 Ha at village Malibrahamani, Balichandrapur and Nisa, Dist. Angul, Odisha by M/s Jindal Steel & Power Ltd. - Environmental Clearance (EC) – reg.**

**[Proposal No. IA/OR/THE/459699/2024; F. No. J-13011/79/2007-IA.II(T)]**

**5.2.1** The proposal is for grant of Environmental Clearance to the project 2 x 525 MW Coal Based Thermal Power Plant in an area of 400 Ha at village Malibrahamani, Balichandrapur and Nisa, Dist. Angul, Odisha by M/s Jindal Steel & Power Ltd.

**5.2.2** The Project Proponent along with consultant M/s. Enviro Infra Solution Pvt. Ltd made a detailed presentation on the salient features of the project and informed that:

- i. The proposal is for Environmental Clearance to the project for a 2 x 525 MW Coal Based Thermal Power Plant in an area of 400 Ha located at village Malibrahamani and Nisha, Dist. Angul, Odisha by M/s. Jindal Steel & Power Ltd.
- ii. The salient features of the project:

- **Project details:**

Name of the Proposal	2X525 MW Coal based thermal power plant at
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	at Village Malibrahamani and Nisa, District Angul, Odisha
Proposal No.	IA/OR/THE/459699/2024
Location	Odisha
Company's Name	Jindal Steel and Power Ltd.
Accredited Consultant and certificate no.	Enviro Infra Solution Pvt. Ltd., Letter no. NABET/ EIA/2225/RA 0300 Validity: 27.11.2025
Inter- state issue involved	No
Seismic zone	Zone-III as per relevant IS

• **Category details:**

Category of the project	A
Capacity	1050 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	<p>This project was previously promoted by M/s Monnet Power Company Limited (MPCL) who has started construction in 2010 and stopped by March 2015, without the plant becoming operational. The project had received EC vide letter no. J-13011/79/2007-IA.II(T) dated 29.06.2010 and its validity had been extended vide letters dated 27.05.2015 and 10.07.2017.</p> <p>M/s Jindal Steel &amp; Power Limited (JSPL) has recently purchased the partially constructed &amp; not yet operational 2X525 MW coal based thermal power plant at village Malibrahamani, District Angul, Odisha from the liquidator of the previous promoters of the project appointed by the NCLT under Insolvency and Bankruptcy Code, 2016.</p> <p>After the purchase of the said project, M/s Jindal Steel &amp; Power Limited intends to resume construction of the project after obtaining fresh EC as per provisions of MoEF&amp;CC Notification S.O. 1247(E) dt. 18.03.2021 wherein projects where EC has lapsed but construction has been undertaken</p>

	<p>more than 50%, exemption in public hearing may be granted on consideration by the EAC when the PP applies for the EC de novo.</p> <p>After becoming the successful bidder, M/s JSPL had commenced baseline monitoring through NABL accredited lab for a period of 3 months (Dec 2022-Feb 2023) in anticipation that we shall have to apply for environmental clearance afresh.</p>
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• **Project description:**

If expansion, the details of ECs (including amendments and extension of validity) of existing Units etc.	Not applicable since it is not an expansion
Amendments granted, if Yes details	Nil
Expansion / Green Field (new):  (IPP / Merchant / Captive):	Brownfield but new (partially constructed & non-operational) Captive
Co-ordinates of all four corners of TPP Site:	Plant area A. North most: 20°55'57.75"N, 84°59'13.78"E B. East most: 20°55'04.93"N, 84°59'59.75"E C. South most: 20°54'50.21N, 84°59'30.7"E D. West most: 20°55'09.48"N, 84°58'58.85"E
Average height of: (a) TPP site, (b) ash pond site etc. above MSL	179 m to 210 m amsl 166 m to 210 m amsl
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):	Rs. 5755 crores. Out of this Rs. 3947 Crore had been spent by previous PP till takeover.
Cost of the proposed activity in the amendment:	The balance works are expected to cost Rs. 1808 crores.



Employment Potential for entire project/ plant and employment potential for the proposed amendment (specify number of persons and quantitative information)	400 persons
Benefits of the project (specify quantitative information)	Employment (direct & indirect), tax to the state exchequer, benefits to the local population due to peripheral development measures that shall be undertaken by the company

- **Electricity generation capacity:**

Capacity & Unit Configurations	2 X 525 MW
Generation of Electricity Annually	7,560,000 MW

- **Details of fuel and Ash disposal**

Fuel to be used:	Coal
Quantity of Fuel required per Annum:	5.45 MTPA coal at 80% PLF or 6.81 MTPA at 100% PLF
Coal Linkage / Coal Block: (If Block allotted, the status of EC & FC of the Block)	JSPL owned Utkal B1/B2 or Utkal-C Coal Mines in Odisha Status: Utkal B1, EC vide letter no. No.J-11015/309/2006-IA.II(M) dated 09.04.2007. Utkal B2, vide letter no. J-11015/108/2003-IA.II(M) dated 28 Jul 2006 Utkal C, EC vide letter no. J-11015/108/2003-IA.II(M) dated 28.07.2006
Details of the mode of transportation of coal source to the plant premises along with distances	Coal will be transported by conveyor.
Fly Ash Disposal System Proposed	Fly ash: Dry extraction & utilisation, Bottom ash: slurry & disposal.
Ash Pond/ Dyke (Area, Location & Co-ordinates) Average height of area above MSL (m)	Location: Village Malibrahmani, Nisha, Dist. Angul, Odisha  Ash Disposal Area coordinates: A. North most: 20°56'16.30"N, 85°00'12.71"E B. East most: 20°55'03.43"N, 85°01'08.92"E

	<p>C. South most: 20°55'03.43"N, 85°01'08.92"E D. West most: 20°56'12.29"N, 85°00'08.50"E</p> <p>Elevation : 166 m to 210 m amsl</p>
<p>Quantity of</p> <p>a. Fly Ash to be generated</p> <p>b. Bottom Ash to be generated:</p>	<p>Fly ash - 1.744 MTPA at 80% PLF or 2.176 MTPA at 100% PLF.</p> <p>Bottom ash - 0.436 MTPA at 80% PLF or 0.544 MTPA at 100% PLF.</p>
Fly Ash utilization (details)	The Ash utilisation shall be done as per Ministry of Environment, Forests and Climate Change Notification dated 31-12-2021. Fly ash collected from silo will be collected in dry form for commercial use for cement manufacturing, brick making, road embankment, filling in mines, etc. and balance stored in ash disposal area. Bottom ash would be disposed in slurry form to ash pond located on the east of the power plant.
Stack Height (m) & Type of Flue	Twin-flue common stack of 275 m height.

• **Water Requirement:**

Source of Water:	Brahamani river
Quantity of water requirement:	3050 m <sup>3</sup> /hr
Distance of source of water from Plant:	22 km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	Samal Barrage is existing on Brahamani River
Mode of conveyance of water:	Pipeline
Status of water linkage:	Previous PP had received approval from the Odisha Water Resource Department (OWRD) for drawing 37 cusecs of water from Brahmani. High Level Committee, Govt. of Odisha has granted approval for transfer of the permission to JSP
(If source is Sea water) Desalination Plant Capacity	Not applicable
Mode / Management of Brine:	Not applicable
Cooling system	Recirculating type cooling water system with wet type Induced Draft Cooling Towers using

	clarified water as cooling medium.
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• **Land Area Breakup:**

Land Requirement:				
TPP Site	a) 175 ha			
Ash Pond	b) 155 ha			
Township	c) 20 ha			
Railway Siding & Others				
Raw Water Reservoir				
Green Belt				
others				
Total (if expansion state additional land requirement)	50ha			
Status of Land Acquisition:	<b>Component</b>	<b>Acquired, ha</b>	<b>To be acquired, ha</b>	<b>Total, ha</b>
	Plant	166.265	8.735	175
	Ash disposal	127.754	27.246	155
	Township (& RR colony)	9.603	10.397	20
	Service Corridor & misc.	0	50	50
	<b>Total</b>	<b>303.622</b>	<b>96.378</b>	<b>400</b>
	Company will optimize land and try to minimize land acquisition in project area.			
Status of the project:	66% complete			
If under construction phase: please specify the reasons for delay, works completed till date and balance works along with expected date of completion.	<p>The construction was carried out from 2010 to March 2015. All major civil foundation works had been completed in 2014. Boiler construction of unit 1 was in advance stage in 2014 as its hydro test has been completed in that year. Construction ceased from March 2015 due to insolvency of the previous promotor.</p> <p>JSP Ltd. will resume construction &amp; operation after receipt of statutory clearances.</p>			

<p>If under operation phase, date of commissioning (COD) of each unit.</p> <p>Whether the plant was under shutdown since commissioning, details and reasons.</p>	<p>Not operational</p> <p>Not commissioned till date</p>
<p>Break-Up of land use of TPP site:</p> <p>Total land required for project components</p> <p>Private land</p> <p>Government land</p> <p>Forest Land</p>	<p>Total land required for project components - 400 ha</p> <p>Private land – 34.18 ha</p> <p>Government land – 43.917 ha</p> <p>Forest Land – 18.281 ha</p> <p>Others (industrial)- 303.622 ha</p>

• **Presence of Environmentally Sensitive areas in the study area**

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter / Remarks	
Reserve Forest/ Protected Forest Land	Yes	Name of Forest	Distance and Direction
		Durgapur R F	Adjoining , W
		Kaliakata RF	Adjoining, S
		Keriang RF	3.4 km, SSW
		DerjangaGolabandha P F	6.7 km, S
		Paranga P F	0.8 km, S
		PF near Ramadihi	Adjoining, S
		Nisha P F	Adjoining, E
		Malibandha R F	0.9 km, E
		Khalapal R F	8.0 km, NNW
		Gopalprasad RF	4.8 km, NE
		Kaushiakhhol R F	6.7 km, E
		Kuio P F	5.5 km, E
		Sakasingha RF	8.1 km, SE
		Barakhathia R F	5.7 km, N
		Similisahi PF	8.7 km, NNW



		Baihanali RF	8.7 km, NNW
		ArishilaSulia PF	9.6 km, WSW
		Kosala RF	9.8 km, NW
		RF Near Derjangasahi	8.4 km, SE
		Jaipur RF	3.9 km, N
National Park	No	Nil	
Wildlife Sanctuary	No	Nil	
Archaeological sites monuments/historical temples etc	No	Nil	
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:	Yes	Forests as listed earlier. Streams/ rivers as below:	
		Ghordia Nala	2.4 km , N
		SinghadaJora	3.4 km , N
		Kurdabhali Nala	2.0 km, SW
		Angul Main Canal	7.1 km, SSE
		Baleidhara Nala	3.4 km, SE
		GhordiaNala	2.5 km, W
		Kondhanal nala	5.0 km, N
		Mararha Nala	6.2 km, N
		NandiraJhor	3.2 km, S
		MateliaJhor	7.9 km, SSE
		Nigra Nala	7.3 km, S
		Derjanga Reservoir	6.9 km, S
		Mutukuria Jor	2.9 km, SSE
		Satyabadi Sagar	6.3 km, ENE
		Bangaru Nala	7.7 km, ENE
		Gundijeri Nala	6.2 km, NW
		Lingara Nala	7.6 km, SSE
		Sakasingha Minor	8.3 km, SE
		Jarasingha Minor	8.7 km, SE
		Dhempa Nala	9.5 km, N
Availability of Schedule-I species in study area	Jackal (Canis aureus), Wolf (Canis lupus pallipes), Asiatic elephant (Elephasmaximus), Jungle cat (Felischaus), Fox		

	(Vulpesbengalensis), Hyena (Hyena hyena), Mongoose (Herpestesedwardsi), Indian porcupine (HystrixIndica), Otter (Lutragaleperspicillata), Small India Civet (Viverriculaindica), Indian rat snake (Ptyas mucosa), Indian rock python (Python molurus), Bengal monitor (Varanusbengalensis), Yellow monitor (Varanusflavescens)
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• **Court case details:**

Any litigation/ Court Case pertaining to the project	No
Is the proposal under any investigation? If so, details thereof.	No
Any violation case pertaining to the project:	No
Additional information (if any)	nil

- iii. The project proposal was considered by the Expert Appraisal Committee (Thermal) in its 40<sup>th</sup> meeting held on 25.04.2023 and recommended for grant of Terms of References (ToR) for the Project. The ToR accorded by the Ministry vide letter No.J-13011/79/2007-IA. II(T); dated 12.06.2023.
- iv. All units are listed at S.N. 1(d) of the Schedule to the Environment Impact Assessment (EIA) Notification under the category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).
- v. The Ministry had issued EC earlier vide letter no. J-13011/79/2007-IA. II(T) dated 29.06.2010 and its validity had been extended vide letter dated 27.05.2015 and 10.07.2017 to the existing project in favour of M/s.Monnet Power Company Limited (MPCL) (previous promotor of the project). They had started construction in 2010 and stopped by March 2015, without the plant becoming operational. M/s Jindal Steel & Power Limited (JSP Ltd.) has recently purchased this partially constructed & not yet operational power plant from the previous promoters of the project under the NCLT as per Insolvency and Bankruptcy Code, 2016. Fresh EC on the same project is being sought by JSP Ltd.
- vi. The estimated project cost is Rs 5755 crores. Total capital cost earmarked towards environmental pollution control measures is Rs 617.07 crores and the recurring cost (operation and maintenance) will be Rs 59.3 crores per annum.

- vii. Total Employment will be 400 persons as direct & indirect. Industry proposes to allocate Rs.2.11 Crores towards budget to address public consultation issues.
- viii. There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the projectsite. Kurdabhali Nala is flowing at a distance of 2.0 km in SW direction.
- ix. **Baseline Environmental Scenario:**

Period	From December 2022 to February 2023
AAQ parameters at 8 locations (min. & Max.)	<ul style="list-style-type: none"> <li>• <math>PM_{10} = 47.9 - 82.2 \mu g/m^3</math></li> <li>• <math>PM_{2.5} = 26.0 - 48.0 \mu g/m^3</math></li> <li>• <math>SO_2 = BDL(&lt;4 \mu g/m^3) - 18.6 \mu g/m^3</math></li> <li>• <math>NO_x = 9.3 - 24.9 \mu g/m^3</math></li> <li>• <math>CO = 0.115 \text{ to } 0.802 \text{ mg/m}^3</math></li> <li>• <math>NH_3 = BDL (&lt;20 \mu g/m^3)</math></li> <li>• <math>Pb = 0.01 \mu g/m^3</math></li> <li>• <math>As = 0.1 \text{ ng/m}^3</math></li> <li>• <math>Ni = 3.2 \text{ ng/m}^3</math></li> </ul>
Incremental GLC Level	<ul style="list-style-type: none"> <li>• <math>PM_{10} = \text{Max. GLC: } 0.81 \mu g/m^3</math> (800 m south-east)</li> <li>• <math>PM_{2.5} = \text{Max. GLC: } 0.81 \mu g/m^3</math> (800 m south east)</li> <li>• <math>SO_2 = \text{Max GLC: } 7.24 \mu g/m^3</math> (800 m south-east)</li> <li>• <math>NO_x = \text{Max GLC: } 1.09 \mu g/m^3</math> (800 m south-east)</li> </ul>
Surface water samples (8 samples)	<p>pH 6.52 – 8.33, Dissolved Oxygen: 5.4-6.5 mg/lit; Total Dissolved Solids: 136.4 - 524.8 mg/lit; Sulphate (as <math>SO_4</math>): 4.1 - 76.5 mg/lit , Nitrate (as <math>NO_3</math>) : &lt;0.2 - 14.2 mg/lit; Chloride (as Cl) : 7.9 - 57.71 mg/lit; Iron (as Fe): &lt;0.05 - 0.48 mg/lit; BOD &lt;2 - 2.8 mg/lit;</p> <p>Heavy metals like Copper (as Cu):&lt;0.03 - &lt;0.03, Lead (as Pb): &lt;0.01, Cadmium(as Cd): &lt;0.01,Chromium (as Cr): &lt;0.05, Arsenic (as As):&lt;0.01</p>
Ground Water samples at 10 Locations	<p>pH: 6.5-6.85; Total Dissolved Solids: 92.8-1866 mg/lit; total Hardness (as <math>CaCO_3</math>): 20-552 mg/lit; Total Alkalinity(as <math>CaCO_3</math>): 30-480 mg/lit; Calcium (as Ca): 7.2-81.8 mg/lit; Magnesium (as Mg): 0.5-84.6 mg/lit;</p>

	<p>Sulphate (asSO<sub>4</sub>): &lt;1-78.5 mg/lit, Nitrate (as NO<sub>3</sub>): 0.1-42.8 mg/lit; Chloride (as Cl): 10-248.7 mg/lit; Iron (as Fe): &lt;0.05-0.21 mg/lit;</p> <p>Heavy metals like Lead (as Pb): &lt;0.01, Cadmium(as Cd): &lt;0.01,Chromium (as Cr): &lt;0.05, Manganese (as Mn): &lt;0.05, Arsenic (as As): &lt;0.001 and Mercury(as Hg) :&lt;0.001</p>
Noise levels Leq (Day & Night) at 8 Locations	The Leq values for day time was observed to be 50.6 to 64.1dB (A) in residential area, while during night time 40.8 to 53.6 dB (A).
Soil Quality at 5 Locations	<p>Bulk density: 0.9 to 1.2 gm/cm<sup>3</sup>; pH range 6.95 to 7.32; Electrical conductivity (EC); 130.4 to 242.6µmhos/cm; calcium content: 21.8 to 50 mg/kg; sodium: 7692 to 9231 mg/kg; potassium: 51.2 to 114.5 mg/kg; Nitrogen: 416.2 to 642.4 mg/kg; Phosphorous: 27.0 to 57.3 mg/kg;; Manganese: 2.6 to 4.1mg/kg; Sulphur: ---to --- mg/kg; Organic Carbon: 0.15 to 1.1 %</p>
Flora & Fauna	<p>Schedule-I species observed in the study area:</p> <p>Jackal (Canis aureus), Wolf (Canis lupus pallipes), Asiatic elephant (Elephasmaximus), Jungle cat (Felischaus), Fox (Vulpesbengalensis), Hyena (Hyena hyena), Mongoose (Herpestesedwardsi), Indian porcupine (HystrixIndica), Otter (Lutragaleperspicillata), Small India Civet (Viverriculaindica), Indian rat snake (Ptyas mucosa), Indian rock python (Python molurus), Bengal monitor (Varanusbengalensis), Yellow monitor (Varanusflavescens)</p>

- x. Total water requirement is 3050 m<sup>3</sup>/hr of fresh water requirement will be met from Samal Barrage existing on Brahamani River. Water withdrawal permission for 37 cusecs i.e. 3772 m<sup>3</sup>/hr from existing Samal Barrage on Brahamani River was obtained by MPCL, previous project proponent from the Odisha Water Resource Department (OWRD). Subsequent to the acquisition of the TPP by JSPL, the State Level Single Window Clearance Authority, Govt. Of Odisha vide letter SW/PP/MPCL/EXPAN/9/511 dated 12.06.2023 has noted that all the statutory approvals, allotments, clearances etc. of MPCL are to be transferred to M/s Jindal Steel & Power Ltd. Further, application for withdrawal permission has been submitted online with the Department of



Water Resources, Odisha on 22.11.2023. Rain water shall also be collected and reused within the plant site to reduce intake from Samal Barrage.

- xi. Out of total wastewater generation of 450 m<sup>3</sup>/hr, the effluent quantity will be 434 m<sup>3</sup>/hr which will be further treated with Guard Pond and domestic sewage of 16 m<sup>3</sup>/hr will be treated through sewage treatment plant. The plant will be based on an effluent discharge system.
- xii. The Power requirement of the project will be 7% of the production and will be met from its own TG.
- xiii. The project will have two numbers of 1700 TPH coal-fired boilers. An electrostatic Precipitator with a stack of height of 275 m will be installed to control the particulate emissions within the statutory limit of 30 mg/Nm<sup>3</sup> for the boilers.
- xiv. Details of Solid waste/ Hazardous waste generation and its management:
  - Bottom ash (0.436 MTPA) - To be disposed of in the ash dyke and on settlement, to be used in mine backfilling, low-lying area filling, etc.
  - Fly ash (1.744 MTPA) - 100% used for roads, levelling, backfilling, cement making, brick making etc. as per Fly Ash Utilisation Notification 2021.
  - The proposal is for lean-density slurry disposal with recycling of ash pond water.
  - The company has earmarked 155 ha as an ash pond area including a green belt.
  - Domestic waste - segregated & composted, recycled or landfilled
  - Sewage sludge- composted & used as manure
  - used oils/ spent oil, oil & grease- sold to authorized hazardous waste recycling vendors in drums
  - Settling tank sludges - put them in an impervious pit and dispose of them at a TSDF facility
  - E-waste- to authorised recyclers
  - Biomedical waste - to biomedical waste management agency
- xv. **Public Hearing:** Public Hearing for the proposed project has been exempted by MoEF&CC in line with its Notification No. S.O. 1247 (E) dated 18.03.2021 and it was directed to go for public consultation (written submission). In compliance to the same, State Pollution Control Board, Odisha issued notice vide letter no.14983/IND-II-NoC-MISC-289 dated 26.09.2023 invited views, comments, suggestions/objections etc. relating to environmental aspects of the proposed project within 30 days of publishing of the notice. The major demand during the public hearing are related to employment, development

activities in surrounding villages, environmental pollution and allowance to local farmers to sell their produce in company canteen and townships.

xvi. Budget of welfare expenditure based on Public Consultation:

- The total expenditure to meet public consultation other demands will be Rs. 211.5 Lakh to be distributed over 3 years.

Sl. No.	Physical activity and action plan		Year of Implementation (Budget in Rs. lakhs)			
	Name of the Activity	Physical Target	Year 1	Year 2	Year 3	Total
<b>1</b>	<b>Drinking Water</b>					
	Provision of drinking water	Provision of water supply through tankers on any community function occasion Nisha, Malibrahmani, R&R colony, Kaliakata, Balichandrapur & others, as Required	2	2	2	6
		Provision of pipeline and tanks (2nos./village) in villages Malibrahmani, Nisha and Kaliakata	6	6	6	18
<b>2</b>	<b>Electricity</b>					
		Maintenance of street light in villages Nisa and Malibrahmani	0.5	0.5	0.5	1.5
	Electricity facilities	Installation of solar lights (10 nos each year) in villages Malibrahmani, Balichandrapur and Kaliakata	4	4	4	12
<b>3</b>	<b>Skill Development</b>					
	For Women	Provision of sewing machines (10 nos./year/village) to women for tailoring classes through Local Panchayat of Nisha, Malibrahmani, R&R colony, Kaliakata, Balichandrapur	2.5	2.5	2.5	7.5
	To farmers/rearing animals	Training to farmers (20 nos./village/year) and animal rearers to increase productivity of Nisha, Malibrahmani, Kaliakata, Balichandrapur	4	4	4	12

	For youths/land losers	Provision of training (20 nos./ year/ village) to local youths/land losers through Local Panchayat to become self reliant (Carpentry, automobile mechanic, driving etc.) of Nisha, Malibrahmani, Kaliakata, Balichandrapur	4	4	4	12
<b>4</b>	<b>Education</b>					
	Monetary support to schools & underprivileged students	Provision of stationary, books, etc. to underprivileged students in the school nearby the Plant in Malibrahmani and Nisa Village	2	2	2	6
	Supporting meritorious students	Scholarship to meritorious students for higher education- ITI training (10 students)	1	1	1	3
		Laptops to top three rankers of Odisha Board Class 10 from amongst schools in 2 km radius	1.5	1.5	1.5	4.5
	Infrastructure	Construction of boys and girls toilets in schools (4 nos.) in villages Nisha, Malibrahmani, Kaliakata, Balichandrapur	4	4	4	12
		Boundary wall construction in 3school, as per requirement from villages in 2 km radius	2	2	2	6
5	Tree Plantation	Distribution of saplings of native ethno botanical species to Nisa, Malibrahmani, Kaliakata, Balichandrapur, Kankarei villages	1	1	1	3
6	Sports activities	Provision of sports material (bats, balls, wickets basket ball, foot ball, badminton raquets, carrom boards, chess etc. ) to primary and middle Schools in Malibrahmani, Nisa and Kaliakata villages or any otherschools in villages as per requirement	1.5	1.5	1.5	4.5
		Maintenance of playground (1 no. per year)	1	1	1	3
7	<b>Social infrastructure</b>	Repair of places of worship, community centre	1.5	1.5	1.5	4.5
		Construction of toilets in villages Kaliakata, Malibrahmani, Balichandrapur	2.5	2.5	2.5	7.5
		Repair/ Provision of drains in villages Raijharan, Nisha, Malibrahmani, Kaliakata (Rs. 2lakh/village/ year)	8	8	8	24

		Donation in local festivals	1	1	1	3
8	<b>Infrastructure Development</b>	Repair of internal village roads of Malibrahmani, Balichandrapur and Kaliakata	2	2	2	6
		Maintenance of village ponds and cleaning of overhead tanks of Malibrahmani, Balichandrapur and Kaliakata	1	1	1	3
9	<b>Communication development</b>	Provision of free bus service on special occasions	1	1	1	3
10	<b>Expenditure for Public Health</b>	Medical camps (Eye checkup, pathological test, etc.) in Nisa and Malibrahmani Villages (6per year in each villages)	12	12	12	36
		Provision of ambulance on callasperrequirement in Malibrahmani and Nisa Village	10	1	1	12
		Awareness camps for recycle and reuse, importance of cleanliness, nourishment, de-addiction in Malibrahmani and Nisa Village	0.5	0.5	0.5	1.5
	<b>Total</b>		<b>76.5</b>	<b>67.5</b>	<b>67.5</b>	<b>211.5</b>

The expenses related scholarship for poor meritorious students, financial help training/ skill development, etc. activities are recurring in nature and will be covered in CSR.

xvii. Status of Litigation Pending against the proposal, if any- Nil.

xviii. **Plantation program:**

- Under the proposed green belt and plantation programme, 132 ha of land in plant area, R&R colony, services area and ash pond area shall be provided with green cover. The main consideration during development of green belt and plantation are effective trapping of fugitive emission, act as sink for stack emissions, sequester carbon, noise control, balancing ecology, waste water reuse and aesthetics.
- Plants act as natural sink for a variety of pollutants as well as replenish air with fresh oxygen. The plant species would be fast growing, evergreen having large crown. As a single plant does not have all the qualities, a mixture of several varieties of plants will be chosen. Native trees will be preferred. The widths of the belt will be as per the availability all along the boundary, the criterion for selection of area/ location for green belt would



be along pre dominant wind direction, along plant boundary and roadside avenue plantation and around administrative building.

- The species suggested for plantation are Kendu (*Diospyros melanoxylon*), Bel (*Aegle marmelos*) Char (*Buchanania lanzan*), Siris (*Albizia lebbek*), Neem (*Azadirachta indica*), Mango (*Mangifera indica*), Peepal (*Ficus religiosa*), Amla (*Phyllanthus embelica*), etc. Native ethno-medicinal species will be preferred.

Year	Area(inha)	Trees(Nos.)
2024-2025	32	80000
2025-2026	25	62500+casualtyplantation
2026-2027	25	62500+casualtyplantation
2027-2028	25	62500+casualtyplantation
2028-2029	25	62500+casualtyplantation
Total	132	3,30,000

xix. **Environmental Management Plan:**

Adequate budgetary provisions have been made by the Company for the execution of the Environmental Management Plan. The table gives overall investment in the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures. The capital cost estimated for EMP and the Annual recurring cost of monitoring and implementation of control measures and environment management plan are given in the Table below:

**Cost for Environment Management (Rs. Crores)**

Sl. No.	Particulars	Capital Cost	Recurring Cost
1	Air pollution control (Including ESPs balance work, provision of FGD, etc.)	440	44
2	Waterpollution control	30	3
3	Ash handling	130	6.5
4	EnvironmentalMonitoring	0.92	0.26
5	OccupationalHealth	3.05	0.30
6	Greenbelt(ha)	13.1	5.24
	<b>TOTAL</b>	<b>617.07</b>	<b>59.3</b>

The capital investment on environmental management plan is envisaged as Rs. 617.07 crores and recurring expenditure will be Rs. 59.3 crores /year which includes the provision of installation of FGD (about Rs. 400 crores capital cost and Rs. 40 recurring cost). Till installation of FGD the recurring EMP cost shall be Rs. 19.3 crores.

### **5.2.3 The EAC during deliberations noted the following:**

The proposal is for the grant of Environmental Clearance to the project 2 x 525 MW Coal Based Thermal Power Plant in an area of 400 Ha at village Malibrahamani, Balichandrapur and Nisa, Dist. Angul, Odisha by M/s Jindal Steel & Power Ltd.

The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, as amended as the power generation capacity of the proposed expansion is beyond the threshold capacity of 500MW i.e. 2x525 MW and requires appraisal at Central level by the sectoral EAC in the Ministry.

The Committee observed that M/s Jindal Steel & Power Limited (JSP) recently purchased the partially constructed & not yet operational 2X525 MW coal based Thermal Power Plant at Angul, Odisha from the liquidator of the previous promoters of the project, M/s Monnet Power Company Limited (MPCL), appointed by the NCLT under Insolvency and Bankruptcy Code, 2016.

MoEF&CC vide letter no. J-13011/79/2007-IA. II(T) dated 29.06.2010 granted EC to MPCLand its validity was extended vide letters dated 27.05.2015 and 10.07.2017, thus extending validity till 28.06.2020. The EC lapsed in 2021 as per MOEF&CC's Notification no. S.O. 1807(E) dated 12.04.2022 and the additional one-year relaxation granted due to COVID vide MOEF&CC's Notification no. S.O. 4254(E) dated 27.11.2020. Renewal of EC was not applied for as the instant project was under NCLT. JSP applied for TOR on 13.04.2023 vide proposal no. IA/OR/THE/425646/2023. TOR were granted vide letter no. J-13011/79/2007.IA.II.(T) dated 12.06.2023 with Public consultation (written submission) as per the MoEF&CC's Notification S.O. 1247(E) dtd. 18.03.2021

The terms of reference granted on 12.06.2023 by the ministry without public hearing but with public consultation (written submission) as per Notification No. S.O. 1247 (E) dated 18.03.2021 in which following has been stated: *"the projects where construction and commissioning of proposed activities have not been completed within the validity period of the Environmental Clearance (EC) and a fresh application for EC has been submitted due to expiry of the said period of the EC, the concerned Expert Appraisal Committee or State Level Expert Committee, as the case may be,*

*may exempt the requirement of public hearing subject to the condition that the project has been implemented not less than fifty percentage in its physical form or construction.”* The committee noted that PP submitted M/s Tractebel Engineering Pvt. Ltd., Gurgaon, Haryana, India had prepared the “FINAL DUE DILIGENCE REPORT” for IDFC Bank Limited for the TPP on 12.05.2017 and according to report status of the project is 66% completed.

PP submitted that Odisha SPCB issued public notice in newspapers on 26.09.2023 inviting views, comments, suggestions/objections etc. relating to environmental aspects of the proposed project within 30 days of publishing of the notice. Total 677 representations were received directly and 5 representations were received through e-mail during the notice period. The Key issues raised during the public consultation (written submission) are related to generation of employment opportunity, provision of adequate environmental protection measures, drinking water supply, health care facilities school, community development etc. The total expenditure to address the issues/demand raised by public will be Rs. 211.5 Lakh to be distributed over 3 years. The Committee deliberated on the on the public comments and is of the view that there are activities which are also recurring in nature and accordingly PP shall keep the provision for the same for at least 10 years. The CSR budget shall be used for the same.

The EAC noted that though the project doesn't require additional land but 96.378 Ha of land still needs to be acquired by the project proponent. Out of 400 ha of project land requirement, there is the presence of 8.281 ha forest land of which Stage-I Forest Clearance was obtained vide letter No. 5-ORC175/2013-BHU dated 09.04.2014 Eastern Regional Office, Bhubaneswar of MoEF. The proposal for the transfer of FC to JSPL is under process at the State Govt. level. The Committee is of the view that PP shall get the FC transfer in its name.

It was further noted that as per Consolidated Guidelines and Clarifications issued under Van (SanrakshanEvamSamvardhan) Adhiniyam, 1980 And Van (SanrakshanEvamSamvardhan) Rules, 2023 wherein inter alia it has been mentioned that *“Where compliance of condition imposed in the ‘In-principle’ approval is awaited from the State Government or Union territory Administration, as the case may be, for more than two years, the ‘In-Principle’ approval shall be deemed to be null and void:”*. But as per provision of sub rule (8) of Rule 16 Van (SanrakshanEvamSamvardhan) Rules, 2023 wherein it has mentioned that:

*Any proposal which has already been submitted under the provisions of the Forest (Conservation) Rules, 2003 or Forest (Conservation) Rules, 2022 and are currently under consideration of the various authorities in the State Government or Union territory Administration or the Central Government for grant of ‘In-principle’ or ‘Final’ approval shall be dealt in the following manner, namely:-*

*(i) Any proposals granted 'In-principle' approval shall be dealt under the provisions of the extant rules and be processed and considered for grant of 'Final' approval without amending the conditions stipulated in the 'In-principle' approval; and*

*(ii) Any provision of the extant rules will be applicable on the proposals which are yet to be granted 'In-principle' approval under the Adhiniyam.*

Therefore, the Committee is of the view that PP shall get the FC transferred in its name at the earliest. The EAC also noted that the Durgapur RF and Kaliakata RF, both adjacent to the project boundary, are other reserve forest areas and advised that the Project Proponent (PP) refrain from any activity that would encroach upon the designated forest land, given that none of the project's components are located within that area. Furthermore, the EAC suggested that the PP formally submit information regarding the forest land within the project area to the appropriate forest department for their review and consideration. Committee also noted that there are no National parks, Wildlife Sanctuary, Biospheres reserves within 10 km radius.

The Committee noted that there are 14 Schedule-1 species reported by the PP in the buffer area and the PCCF & HoFF, Govt. of Odisha vide letter dated. 23.08.2023 directed DFO to prepare a Site Specific Wildlife Conservation Plan for the TPP. The same is under preparation by DFO and the Company undertakes to comply with the subsequent directions from the PCCF & Chief Wildlife Warden on the same. The Committee is of the view that PP shall get WLCP approved from CWLW and the budget approved by CWLW for implantation of WLCP shall be deposited with the concerned authority.

The EAC noted that PP submitted that initially coal to be supplied through road by 38 T trucks from Utkal B1 (1.7 km, NW) or Utkal B2 (2.8 km, NW) or Utkal C (0.6 km, NW) coal mines of the company and within a period of 2 years the coal will be transported from mines to TPP by conveyor belt. The Committee is of the view that as of now around 66% work is completed and the remaining 34% is yet to be completed. Therefore, the PP have some time to initiate the work related to the installation of the conveyor belt before the commissioning of the project. The Committee is of the view that PP shall ensure that construction of the conveyor belt shall be taken up on priority and completed within 18 months of start of operations and further all mitigative measures to be taken for road transportation. The Committee is of the view that PP shall deploy BS-VI complaint tippers and as far as possible EV/CNG/LNG-based tippers will be used for the same.

The Committee noted that PP has proposed transportation of ash from plant to end-users by covered trucks/ bulkers. The Committee is of the view that transportation of



the fly ash should be through bulkers only. Further, bottom Ash will be evacuated in slurry form through pipeline to the ash pond (0.7 km NW of plant). The Committee is of the view that PP while operating the plant shall ensure that the pipeline shall be inspected regularly for any leakages.

The Committee noted that PP has proposed to plant 3,30,000 Trees within a period of 5 years in area of 132 Ha in phased wise manner. The Committee is of the view that PP has acquired most of the land for plant and ash pond and only 96.378 Ha is yet to be acquired. Therefore, the Committee is of the view that plantation around the project boundary shall be completed within a period of one year and the remaining shall be covered in phased wise manner as proposed by PP.

The EAC noted that the capital investment on the environmental management plan is envisaged as Rs. 617.07 crores and recurring expenditure will be Rs. 59.3 crores /year which includes the provision of installation of FGD (about Rs. 400 crores capital cost and Rs. 40 recurring cost). Till installation of FGD the recurring EMP cost shall be Rs. 19.3 crores. The EMP also includes the green belt development cost. The Committee is of the view that for the protection of the environment if the same needs to be enhanced then PP shall do so.

The EAC noted that the PP reported that the direct employment generation from the proposed project will be 400 persons during operation. In addition to this, there will be about equal persons contractually employed by the project. In addition to this, there will be indirect employment. As the majority of unskilled and semi-skilled persons will be from surrounding villages, local population will be benefited. Social welfare activities shall be carried out by the project management in the surrounding villages. It will be for improving social infrastructure (road, drainage, water supply, school) or for activities desired by villagers. The amount earmarked shall be as per the corporate social responsibility program which requires 2% of the average profit of the previous three years.

**5.2.4** The EAC after detailed deliberations on the information submitted and as presented during the meeting **recommended** for grant of Environmental Clearance to the project 2 x 525 MW Coal Based Thermal Power Plant in an area of 400 Ha at village Malibrahamani, Balichandrapur and Nisa, Dist. Angul, Odisha by M/s Jindal Steel & Power Ltd.subject to compliance of following specific environmental safeguard conditions, in addition to the standard EC conditions (Annexure-II) stipulated for the thermal power plants:

### **Specific Conditions:**

#### **[A] Environmental Management**

EC is subject to obtaining transfer of Stage- I FC in name of M/s Jindal Steel & Power Ltd.

Necessary permission for water withdrawal permission of 37 cusecs i.e. 3772 m<sup>3</sup>/hr from Samal Barrage existing on Brahamani River from Department of Water Resources, Odisha shall be obtained/transferred.

Ash pond area and fly ash utilization shall be as per Fly Ash Notification issued by Ministry/ [CPCB](#) from time to time.

PP while operating the plant shall ensure that the pipeline shall be inspected regularly for any leakages.

PP shall get the WLCP approved from CWLW and the budget approved by CWLW for implantation of WLCP shall be deposited with the concerned authority.

PP shall install solar power plant on roof top and also road side poles within the project site will be lighting through solar power. [Refer section 4.3 c), Chapter 4 of EIA]

No effluent shall be mixed with rain water stream during Monsoon seasons. Treatment of effluent and quantity data shall be maintaining through the year.

PP shall ensure that construction of the conveyor belt shall be taken up on priority and completed within 18 months of start of operations and further all mitigative measures to be taken for road transportation. Transportation of coal thereafter, from mines to TPP is through closed belt conveyor only.

No BS-IV trucks shall be use for transportation, BS-VI complaint vehicle shall be purchased and preference shall be given to EV/CNG/LNG based trucks.

Peripheral Green belt (Three row plantation) with Miyawaki plantation technique of 15 m thickness along the plant boundary shall be developed with more than 90% survival rate of the plant species focusing on Ash Dyke area.

33% Plantation shall be carried out within the plant boundary apart from peripheral plantation in ash pond area.

PP shall develop green belt within a period of one year from grant of EC and remaining plantation out of 3,30,000 trees shall be completed within a period of 2 years from the date of commissioning of the project. The budget earmarked for the plantation shall be kept in a separate account and audited annually. PP should annually submit the audited statement of expenditure along with proof of activities viz. photographs (before & after with geolocation date & time), details of expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation etc. to the Regional Office of MoEF&CC and on PARIVESH Portal as the case may be for the activities carried out during previous year.

Extensive green cover within 2 km range of the plant boundary shall be developed. An action plan in this regard to be prepared in consultation with state forest department/expert institution and submitted before Regional Office of the Ministry within 3 months.

Extensive green plantation shall be done in the school to bring down the emission level in the range of 10km radius of the project boundary with more than 90% survival rate. Green belt implementation status shall be submitted in six monthly compliance reports.

24x7 online monitoring system for ambient air quality shall be established with its connectivity with SPCB and CPCB server. Stack monitoring shall be done through 24X7 online monitoring system.

Adequate dust extraction system such as cyclones/bag filters and water spray system in dusty areas such as waste delivery points, transfer areas and other vulnerable dusty areas shall be provided along with an environment friendly sludge disposal system. Water Sprinkling on roads shall be done in every 6 hours in winter season and 3 hours in summer season of roads within 1 km range approaching the plant. A logbook shall be maintained for the activity and be in six-monthly compliance report.

LED display of air quality (Continuous Online monitoring) shall be installed on the roadside (within 1 km range) and nearby hotspots viz. residential colony, Schools Hospitals; maintenance of devices shall be done on regular basis.

Everyday cleaning of road/Paved roads/schools/ hospitals within 5 km range of plant site shall be ensured throughout the year through vacuum based vehicle.

Environment Audit of plant shall be done annually and report shall be submitted to Regional office of the Ministry.

Project proponent shall explore the use of treated sewage water from the Sewage Treatment Plant of Municipality / local bodies/ similar organization located within 50km radius of the proposed power project to minimize the water drawl from surface water bodies.

A detailed action plan regarding leachate handling shall be prepared and implemented in consultation with SPCB and the same shall be submitted to the Regional Office of the Ministry. Leachate shall be treated and reused. No treated leachate shall be discharged in any circumstances. Characteristics of Leachate and the treated leachate shall be monitored once in quarter and records shall be maintained.

Oil and grease recovered from the treatment plant should be disposed only through authorized recyclers.

Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.

PP shall provide LEDs Solar lights, solar panel, availability of drinking water, internet connectivity and equip with smart classes, and other basic necessity to School present in 10 km radius of the plant boundaries.

Monitoring of surface water quality and Ground Water quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall also be undertaken and results/findings submitted along with half yearly monitoring report.

A well designed rain-water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed record kept of the quantity of water harvested every year and its use.

No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/ operation of the power plant. A list of all small and large water bodies shall be prepared after physical survey within 10 km radius of the project. A detailed conservation plan for all these water bodies shall be prepared and submitted before the Regional Office of the Ministry within 3 months. Implementation status of conservation plan be submitted in 6 monthly compliance report.

Watershed development plan shall be prepared in consultation with reputed government institute and implemented focusing on micro watershed development within 10 km radius of the project. Action taken report in this regard be submitted before regional office of the Ministry in 6 monthly compliance report.

A detailed ecological monitoring and survey covering forestry, fisheries, wildlife and its habitat shall be done once in two years to assess the impacts of project on the local environment and ecology. Monitoring report shall be uploaded on the Parivesh Portal and a copy of the same be submitted to the regional office of MoEF&CC.

For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.



PP shall submit the updated EMP plan activity budget wise by including i) Fog cannon installation: to mitigate dust emissions, ii) Increased greenbelt development budget: aligned with the expanded plan iii) 02 Continuous Ambient Air Quality Monitoring Stations (CAAQMS): for real-time air quality monitoring. And iv) disaster management system.

PP submitted that a minimal plastic waste (less than 1 ton per year) is anticipated from equipment packaging. This will be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016. The Committee is of the view that in pursuant to Ministry's OM dated 18/07/2022 PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with photograph on the measures taken shall also be included in the six monthly compliance report being submitted by PP.

## **[B] Socio-economic**

A vision document comprising prospective plan for implementation of various CER activities, plantation programme outside the project cover area, rejuvenation and conservation of water bodies within 5km radius of the project cover area, creation of sacred groves etc. shall be prepared and submitted to the Regional Office of the Ministry within 6 months. Implementation status of the same shall be reported to the Regional office in 6 monthly compliance report.

Epidemiological Study among population within 5 km radius of project cover area shall be carried out on regular interval (Once in two year) through independent agency. Necessary measures shall be taken as per findings of study in consultation with district administration. Action taken report shall be submitted to the Regional Office of the Ministry.

The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of Environmental Clearance for undertaking the CER activities, committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

The budget earmarked for addressing the issues raised public consultation (written submission) is Rs. 211.5 Lakh to be distributed over 3 years. The PP shall extend the same for ten years and the budget of CSR may be used for the same. The amount shall be kept in a separate account and audited annually. PP shall submit the activities undertaken with proof and audited statement of expenditure to concerned RO, MoEF&CC every year for the activities carried out in previous year.

Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

A multi-specialty Hospital with 100 beds shall be established and managed by the PP to cater the need of population living within 10 km. The project affected families shall be given free of cost treatment.

A 10+2 Grade school with capacity of at least 500 students with well-equipped modern science practical lab, computer lab and other necessary infrastructure shall be established to provide education facilities in the area. The students from project affected families shall be given free of cost education.

The establishment of a robust public grievance redressal mechanism to address concerns and complaints from local communities regarding the power plant's operations, environmental impacts, or social issues shall be developed. A Senior Officer shall review the functioning of the mechanism twice in a month.

### **[C] Miscellaneous**

An Environmental Cell headed by the Environment Manger with postgraduate qualification in environmental science/environmental engineering, shall be created. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.

Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.

All necessary clearance from the concerned Authority, as may be applicable should be obtained prior to commencement of project or activity.

PP shall submit an undertaking on following within 30 days of grant of EC:

- Ambient air quality data shall be uploaded on CPCB server uninterruptedly through continuous monitoring station.
- For both the existing unit of TPP FGD will be installed by May, 2024.
- Ground water analysis including heavy metal and micro bacterial study shall be done on regular basis and same shall be submitted in six monthly compliance report.
- Legacy ash shall be completely utilized within 1 year after the start of operations for construction of roads by NHAI/ brick making etc.
- To comply with all the conditions in which" PP has assured to comply" written in the review report of IRO dated 08.01.2024 on the action taken report.

### **Agenda Item No.5.3**

**Expansion of Bandhaura Thermal Power Plant under Phase–III by adding 1600 (2x800) MW Ultra Super Critical TPP to Existing 2800 (1200+1600) MW Ph-I &Ph-II in an area of 1170 Acres within the existing plant boundary at District Singrauli, Madhya Pradesh by M/s Mahan Energen Limited – Terms of References (TOR) - reg.**

**[Proposal No. IA/MP/THE/456997/2024; F. No. J-13011/56/2006-IA.II(T)]**

**5.3.1** The proposal is for grant of Terms of Reference (ToR) to the project for Expansion of Bandhaura Thermal Power Plant under Phase–III by adding 1600 (2x800) MW Ultra Super Critical TPP to Existing 2800 (1200+1600) MW Ph-I &Ph-II in an area of 1170 Acres within the existing plant boundary at District Singrauli, Madhya Pradesh by M/s Mahan Energen Limited.

**5.3.2** The Project Proponent and the accredited Consultant “Gaurang Environmental Solutions Pvt. Ltd” (Accreditation valid till: 07/03/2024) made a detailed presentation on the salient features of the project and informed that:

- i. M/s Mahan Energen Limited (MEL)proposes to set up an Ultra Super-Critical Thermal Power Project, under Phase-III expansion, with configuration of two units of 800 MW. The proposed project is envisaged as an expansion of the existing Phase-I 1200 (2x600) MW capacity & under construction Phase-II 1600 (2x800) MW capacity within the existing boundary of MEL catering total capacity of 4400 MW.
- ii. The salient features of the project are as follows:

- **Project details:**

Location	At Villages Bandhaura, Khairahi, Karsualal and Nagwa in District Singrauli, Madhya Pradesh
Company's Name	Mahan Energen Limited
Accredited Consultant and certificate no.	Gaurang Environmental Solutions Pvt. Ltd. Address: #102, SNG Shri Ratna Apartment, Peetal Factory, Jhotwara Road, Jaipur- 302016 NABET Accreditation No.: NABET/EIA/2023/SA 0203
Inter-state issue involved	No
Seismic Zone	Zone-III as per IS 1893.

- **Category details:**

Category of the project	Category 'A' of Sector 1(d) - Thermal Power
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	Plants - ( $\geq$ 500 MW (coal / lignite / naphtha & gas based))		
Capacity	Existing	Expansion	Total
	2800 MW (1200+1600) MW	1600 MW (2 x800) MW	4400 MW (2800+1600) MW
Attracts the General Conditions (Yes/No)	No		
Additional information (if any)	The land is already under possession with Mahan Energen Ltd.		

• **Project Description:**

If expansion, the details of ECs (including amendments and extension of validity) of existing Units etc.	<ul style="list-style-type: none"> <li>• Environmental Clearance granted by MoEFCC vide F. No. J-13011/56/2006-IA.II (T), dated: 27.07.2023 for Expansion of Bandhaura Thermal Power Plant, 1600 (2x800) MW Ultra Super Critical under Phase-II to Bandhaura Thermal Power Plant at Singrauli District, Madhya Pradesh.</li> <li>• Environmental Clearance granted by MoEFCC vide File no. J- 13011/56/2006-IA.II (T) dated 20.04.2007 to Bandhaura Super Thermal Power Project (4x500) MW at Singrauli District, Madhya Pradesh.</li> <li>• Subsequently, amendments were granted on 10.02.2009, 23.08.2013, and 08.04.2016 for setting up the existing 1200 (2x600) MW units.</li> <li>• Further, transferred EC from EP MPL to MEL was granted on 15.09.2022 by MoEF&amp;CC.</li> </ul>
Amendments granted, if Yes details	<ul style="list-style-type: none"> <li>• Amendments were granted on 10.02.2009, 23.08.2013, and 08.04.2016 for setting up the existing 1200 (2x600) MW units.</li> <li>• Further, transferred EC from EP MPL to MEL was granted on 15.09.2022 by MoEF&amp;CC.</li> </ul>
Expansion / Green Field (new):	Expansion (IPP)



If expansion, the date of latest monitoring done by the Regional Office (R.O) of MoEF&CC for compliance of the conditions stipulated in the environmental and CRZ clearances of the previous phases. A certified copy of the latest R.O. monitoring report shall also be submitted.	Six-Monthly EC compliance report for Phase-I (April'2023 to September'2023) submitted to MoEF&CC, CPCB and MPPCB IRO, Bhopal vide letter number APL/Mahan/EMD/EC/MoEFCC/245/11/23 dated 27.11.2023.																																																		
	Certified EC compliance report- EC compliance has certified by Integrated Regional Office of MoEF&CC, Bhopal vide File no. 4(0)-I/2022(ENV.) dated: 02.09.2022 and Updated EC Compliance Status w.r.t non/partial Complied points vide no. 4(0)-1/2022(Env.) 1/40692/2023 dated: 11.04.2023.																																																		
Co-ordinates of all four corners OF TPP Site:	<table><tr><th>POINT NO</th><th>LATITUDE</th><th>LONGITUDE</th></tr><tr><td>Point 1</td><td>24° 0'5.22"N</td><td>82°23'35.46"E</td></tr><tr><td>Point 2</td><td>24° 0'37.46"N</td><td>82°23'47.59"E</td></tr><tr><td>Point 3</td><td>24° 0'39.05"N</td><td>82°24'37.62"E</td></tr><tr><td>Point 4</td><td>24° 0'22.42"N</td><td>82°25'21.39"E</td></tr><tr><td>Point 5</td><td>24° 0'11.10"N</td><td>82°24'57.77"E</td></tr><tr><td>Point 6</td><td>24° 0'16.58"N</td><td>82°24'34.76"E</td></tr><tr><td>Point 7</td><td>24° 0'1.65"N</td><td>82°24'10.35"E</td></tr><tr><td>Point 8</td><td>24° 0'0.34"N</td><td>82°25'0.62"E</td></tr><tr><td>Point 9</td><td>23°59'36.23"N</td><td>82°24'59.75"E</td></tr><tr><td>Point 10</td><td>23°59'1.56"N</td><td>82°24'40.16"E</td></tr><tr><td>Point 11</td><td>23°59'32.85"N</td><td>82°24'28.08"E</td></tr><tr><td>Point 12</td><td>23° 58'59.85"N</td><td>82°24'7.24"E</td></tr><tr><td>Point 13</td><td>23°58'29.90"N</td><td>82°24'4.47"E</td></tr><tr><td>Point 14</td><td>23°59'1.79"N</td><td>82°24'39.99"E</td></tr><tr><td>Point 15</td><td>23°59'52.76"N</td><td>82°25'29.52"E</td></tr></table>	POINT NO	LATITUDE	LONGITUDE	Point 1	24° 0'5.22"N	82°23'35.46"E	Point 2	24° 0'37.46"N	82°23'47.59"E	Point 3	24° 0'39.05"N	82°24'37.62"E	Point 4	24° 0'22.42"N	82°25'21.39"E	Point 5	24° 0'11.10"N	82°24'57.77"E	Point 6	24° 0'16.58"N	82°24'34.76"E	Point 7	24° 0'1.65"N	82°24'10.35"E	Point 8	24° 0'0.34"N	82°25'0.62"E	Point 9	23°59'36.23"N	82°24'59.75"E	Point 10	23°59'1.56"N	82°24'40.16"E	Point 11	23°59'32.85"N	82°24'28.08"E	Point 12	23° 58'59.85"N	82°24'7.24"E	Point 13	23°58'29.90"N	82°24'4.47"E	Point 14	23°59'1.79"N	82°24'39.99"E	Point 15	23°59'52.76"N	82°25'29.52"E		
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Average height of: TPP site, ash pond site etc. above MSL	TPP Site: 338 m above MSL Ash Dyke: 338 m above MSL																																																		
Whether the project is in the Critically Polluted Area (CPA) or within 10	The project area of MEL or within 10 km of CPA does not fall under any CPCB Certified Critically or Severely Polluted Areas as mentioned in O.M no. J11013/5/2010-IA.II(I) dt; 13.01.2010 and its subsequent amendments of MoEF&CC.																																																		

km of CPA. If so, the details thereof:	MEL is around 35 km away from Waidhan Head Quarter.			
CRZ Clearance	Not Applicable			
Cost of the Project (As per EC and revised): Cost of the proposed activity in the amendment:	Proposed Expansion (2x800) MW is Rs.13,863 Crores			
Employment Potential for entire project/plant and employment potential for the proposed amendment (specify number of persons and quantitative information).	<b>During Construction Phase</b>			
	Permanent Employment			
	No. of Permanent Employment [A]		300	
	Period of Employment (No. of Days) [B]		1560	
	No. of Man Days [X] = [A] + [B]		468000	
	Temporary Employment			
	Temporary / Contractual Employment (No. of Man Days) [Y]		1872000	
	Total [X] +[Y]		2340000	
	<b>During Operation Phase</b>			
	During Operation Phase	Existing	Proposed	Total
	No. of Permanent Employment (Nos) [A]	514	300	814
	Period of Employment [B]	21000	10500	31500
	No. of Man Days [X] = [A] +[B]	10794000	3150000	25641000
	Temporary / Contractual Employment (no. of Man Days)	5250000	2625000	7875000
Total [X] +[Y]	16044000	5775000	33516000	
Benefits of the project (specify quantitative information)	The proposed expansion of Project will improve the power supply in the state as well as in India, which is a vital for economic growth as well as improving the quality of Life. <ul style="list-style-type: none"><li>• Infrastructure development.</li><li>• Direct &amp; indirect employment opportunity</li><li>• Revenue generation to central &amp; state government.</li><li>• Trickledown effect of enhance profitability to the local populace</li></ul>			

	<ul style="list-style-type: none"> <li>Skill development and capacity building like vocational training, income generation programmes and entrepreneurship development program Awareness programme and community activities, like health camps, medical aides, family welfare camps, sanitization/ cleanliness awareness programme, immunization camp, sports &amp; cultural activities, plantation, etc. Awareness about water borne diseases and pandemic diseases etc. will be done to local villagers. The project will also attract the high-income groups to invest in the region and thus bring about economic growth of the region.</li> </ul>
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• **Electricity generation capacity:**

Capacity & Unit Configurations:	1600 MW, Configured as 2x800 MW
Generation of Electricity Annually	1600 MWh

• **Details of fuel and Ash disposal**

Fuel to be used:	Coal and Auxiliary Fuel
Quantity of Fuel required per Annum:	For the Proposed Power Project of 1600 MW, the annual fuel requirement is estimated at 6.0 - 7.0 million MTPA at 85% plant load factor with Design Coal GCV of 3000-4200 KCal/kg. Auxiliary liquid fuels, viz. LDO/HSD requirement per annum: 6000 kilo litres.
Coal Linkage / Coal Block: (If Block allotted, status of EC & FC of the Block)	Coal from nearby Commercial Coal Mines.
Details of mode of transportation of coal from coal source to the plant premises along with distances	Coal shall be received at plant through Conveyor Belt System from nearest Mine/Railway Siding.
Fly Ash Disposal System Proposed	Fly ash will be collected in dry form for utilization while bottom ash will be collected in wet form. There would be provision for dry disposal of fly ash from storage silos to closed tankers for utilization in mine reclamation, road construction, aggregate replacement in concrete, for manufacturing bricks, cement, road construction etc. as per Fly Ash Notification, 31st December'2021

	and amendments. Provision would be kept for HCSD disposal of both bottom and fly ash to ash pond in case of exigency. In this case, both bottom ash and fly ash will be disposed through HCSD system to the proposed ash dyke.
Ash Pond/ Dyke (Area, Location & Co-ordinates) Average height of area above MSL (m)	Ash Dyke Area: 232 Acres Height : 338 m above MSL  Point A – Latitude - 23°59'48.41"N Longitude - 82°24'55.73"E  Point B – Latitude - 23°59'40.46"N Longitude - 82°24'37.77"E  Point C – Latitude - 23° 59'32.35"N Longitude - 82°24'55.88"E  Point D – Latitude - 23°59'21.15"N Longitude - 82°24'35.98"E
Quantity of Fly Ash to be generated Bottom Ash to be generated	Ash (Fly Ash & Bottom Ash): 3.83 MTPA Fly ash: 3.064 MTPA Bottom ash: 0.766 MTPA
Fly Ash utilization (details)	Ash Management Plan will be developed and implemented for achieving 100 % utilization. Ash will be used for reclamation of abandoned mine, manufacturing bricks, cement, road construction, aggregate replacement in concrete, etc. as per Fly Ash Notification, 31st December'2021 and amendments.
Stack Height (m) & Type of Flue	120 m & Bi flues with FGD and low NOx.

• **Water Requirement:**

Source of Water:	Rihand (GovindVallabh Pant Sagar) Reservoir located at a distance of 36km by existing water pipeline.
Quantity of water requirement:	3260m3/hr or 28.55 MCM/year
Distance of source of water from Plant:	Approx. 36 Km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	No
Mode of conveyance of water:	Existing Pipelines



Status of water linkage:	The water allocation for proposed expansion is 28.55 MCM will be obtained from Rihand Reservoir.
(If source is Sea water) Desalination Plant Capacity	Not Applicable
Mode / Management of Brine:	Not Applicable
Cooling system	Re-circulating cooling water system using induced Draft cooling towers will be deployed for the proposed extension units.

• **Land Area Breakup:**

Land Requirement:	Sr. No.	Description	Land Utilization (Acres)		
			2x600MW (Ph1)	2x800MW (Ph2)	2x800 MW (Ph3)
TPP Site					
Ash Pond	A	In-Plant Facility			
Township	i	BTG (including FGD (Ph II), Switchyard, Transformer yard etc.	45	61	61
Railway Siding & Others					
Raw Water Reservoir	ii	Coal & Ash Facility (Including Stock yard & AHP facility)	95	15	7
Green Belt					
others	iii	Water System (Including, Cooling Tower, CW Pump house, DM Water System, Clarified, Industrial Wastewater Treatment facility)	30	68	25
Total (if expansion state additional land requirement)	iv	Ash dyke	142	90	...
	ii	Misc. Facility (Including Plant road/boundary road, Misc Building, etc)	51		12
		Total Project Area	702		
	B.	Green Belt (40%)	468		
		Grand Total	1170		

	(A+B)	(473.48 Ha.)
Status of Land Acquisition:	The land is already under possession with Mahan Energen Limited. The total land area is 473.48 Ha. including the existing facility.	
Status of the project:  If under construction phase: please specify the reasons for delay, works completed till date and balance works along with expected date of completion. If under operation phase, date of commissioning (COD) of each unit. Whether the plant was under shutdown since commissioning, details and reasons.	<p>Phase I : 1200 (2x600) MW is commissioned and operational. Unit-1 of the Power Station is operational from 24.02.2013 and Unit – 2 from 18.07.2016.</p> <p>Phase II : EC is granted by MoEFCC on dated 27.07.2023 for 1600 (2x800) MW and the plant is under construction.</p>	
Break-Up of land-use of TPP site:  Total land required for project components Private land Government land Forest Land	<p>It is an expansion project, The land is already in possession with Mahan Energen Limited, Bandhaura TPP. The total land area 473.48 Ha. (1170 Acres) including the existing facility.</p> <p>Hence, the site doesn't involve any forest land, national park/ wildlife sanctuary/ biosphere reserve /tiger reserve/ elephant reserve in the study area &amp; does not fall under coastal zone.</p>	

• **Presence of Environmentally Sensitive areas in the study area**

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No			Details of Certificate/letter/Remarks
Reserve Forest/Protected Forest Land	Yes			This is an expansion project. No forest land is involved in the project site. The land is already in possession with Mahan Energen
	Forests			
	Name	Distance (km)	Direction	
	Open mixed jungle	3.7	NE	
	Mohaban RF	Adjacent	W, SW, S	
	Vihara PF	10.5	NE	

	Pidarwah PF	7.6	N	Limited.
	Mohaban RF	0.42	NNW	
	Open mixed jungle	9.2	NE	
	Fairly Dense Jungle	13.5	SE	
National Park	No			None within 15 km radius
Wildlife Sanctuary	No			None within 15 km radius
Archaeological sites monuments/historical temples etc.	No			None within 15 km.
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:	No National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 km from the plant boundary.			
Additional information (if any)	--			

Availability of Schedule-I Species and study area – 21 mammalian species were recorded from the study area; of which none were reported for the plant area. Out of 21 mammalian species, 1 species is under Schedule I of WPA, 1972 reported outside study area.

Baseline data of environmental attributes like ambient air, water, soil, meteorology, noise, ecology, socioeconomic condition will be collected as per the standard and specific Terms of Reference accorded by MoEF&CC. The primary data will be collected from period March'2024 to May'2024.

- Court case details:**

Any litigation/ Court Case pertaining to the project	Local Civil Court are under hearing & Consideration and reserved for judgment.
Is the proposal under any investigation? If so, details thereof.	No
Any violation case pertaining to the project:	No
Additional information (if any)	--

### **5.3.3 The EAC during deliberations noted the following:**

The proposal is for grant of Terms of Reference (ToR) to the project for conducting EIA study for proposed construction of the Expansion of Bandhaura Thermal Power Plant under Phase–III by adding 1600 (2x800) MW Ultra Super Critical TPP to Existing 2800 (1200+1600) MW Ph-I &Ph-II in an area of 1170 Acres within the existing plant boundary at District Singrauli, Madhya Pradesh by M/s Mahan Energen Limited.

The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, as amended as the power generation capacity of proposed expansion is beyond threshold capacity of 500MW i.e. 1600 MW and requires appraisal at Central level by the sectoral EAC in the Ministry.

The EAC noted that based on Comprehensive Environmental Pollution Index (CEPI) score, Central Pollution Control Board (CPCB) has classified Singrauli as Critically Polluted Area and later in 2016, it was brought under Severally Polluted Area.

The EAC observed that no alternative site analysis has been carried out by the project proponent as it is a brownfield project within same land area.

It was also brought to the notice of EAC that some suggestions were received from a trust for this project and in this regard a reply was sought from PP vide email dated 14/02/2024. The PP vide email dated 15/02/2024 provided the reply. The Committee is of the view that PP shall address the issues while preparing the EIA/EMP Report as agreed in its reply.

**5.3.4** The EAC 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 construction of the Expansion of Bandhaura Thermal Power Plant under Phase–III by adding 1600 (2x800) MW Ultra Super Critical TPP to Existing 2800 (1200+1600) MW Ph-I &Ph-II in an area of 1170 Acres within the existing plant boundary at District Singrauli, Madhya Pradesh by M/s Mahan Energen Limited under the provisions of the EIA Notification, 2006, as amended along with the following additional/specific ToR:

#### **[A] Environmental Management and Biodiversity Conservation**



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 in the EIA/EMP report.

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.

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.

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.

A comparative chart shall be prepared with changes observed from previous baseline study and present baseline study.

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 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.

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 video clip of existing green belt. Plan shall be duly approved by the local forest department.

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.

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.

Details of Ash management of existing (last 5 years) and proposed project shall be submitted, along with 5-year plan for 100 % ash utilization.

Details of Dry Ash handling system along with supplementary coal handling system shall be submitted.

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.

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.

Baseline Study for Heavy metals in Ground water, Surface water and soil to be carried out and incorporated in EIA/EMP report.

Details pertaining to water source, treatment and discharge should be provided.

Zero Liquid Discharge plan shall be submitted.

PP shall submit action plan for using treated Sewage/Domestic wastewater for its operations.

Project Proponent to conduct Environmental Cost Benefit Analysis for the project in EIA/EMP Report.

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.

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.

## **[B] Disaster Management**

- 1) Disaster Management Plan shall be prepared and incorporated in EIA/EMP report.

## **[C] Socio-economic Study**

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.

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.

Demographic details in 10 km area shall be submitted.

#### **[D] Miscellaneous**

Certified compliance report of previous EC to be submitted certified by Regional office of the MoEF&CC. IRO 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.

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.

PP shall submit details of court cases and its status for the project.

The PP should submit the photograph of monitoring stations & sampling locations. The photograph 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.

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.

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.

Aerial view video of project site and transportation route proposed for this project shall be recorded through drone and be submitted.

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.

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.

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.

#### **Agenda Item No.5.4**

**Expansion of Buxar Thermal Power Project from 1320 MW to 1980 MW by installing 1x660 MW plant unit in an area of 1535 acres (1048.69 acres acquired land & 486.31 to be acquired) at Village Akhauripur, Banarpur, Kathtar and etc., Sub-District Chausa, District Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd. – Terms of References (TOR) - reg.**

**[Proposal No. IA/BR/THE/439566/2023; F. No. J-13012/69/2008-IA.I (T)]**

**5.4.1** The proposal is for grant of Terms of Reference to Expansion from 1320 MW to 1980 MW Buxar Thermal Power Project by installing 1x660 MW plant unit Near Chausa, district Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd.

**5.4.2** The Project Proponent and the accredited Consultant M/s. Mantec Consultants Pvt. Ltd (Accreditation valid till: 10.04.2024) made a detailed presentation on the salient features of the project and informed that:

i. The Salient features of the project are as under:

#### **1. Project details:**

Name of the Proposal	Proposed Expansion from 1320 MW to 1980 MW Coal Based Buxar Thermal Power Project by installing 1x660 MW Unit.
Proposal No.	IA/BR/THE/439566/2023



Location	Near Chausa, District Buxar, Bihar
Company's Name	M/s SJVN Thermal Power (P) Limited
Accredited Consultant and certificate no.	Accreditation No.: NABET/EIA/2326/RA 0305, Valid till 20.04.2026
Inter- state issue involved	Yes, Bihar - Uttar Pradesh ~ 1 km in NW
Seismic zone	Zone-III

## 2. Category details:

Category of the project	Cat – A, Sector – 1(d)
Capacity	Existing Project Capacity - 1320 MW Proposed project capacity - 1980 MW
Attracts the General Conditions (Yes/No)	Yes, (Inter-state boundary ~ 1 km in NW)
Additional information (if any)	

## 3. Project Description:

If expansion, the details of ECs (including amendments and extension of validity) of existing Units etc.	The Environmental Clearance was accorded by Ministry of Environment, Forest and Climate Change vide File No. J-13012/69/2008-IA.I(T), dated 28.02.2017 for the 2x660 MW (1320 MW) Coal Based Super Critical Buxar thermal power project (BTPP) at near village Chausa, District Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd.
Amendments granted, if Yes details	NA
Expansion / Green Field (new): (IPP / Merchant / Captive):	Expansion
If expansion, the date of latest monitoring done by the Regional Office (R.O) of MoEF&CC for compliance of the conditions stipulated in the environmental and CRZ clearances of the previous phases. A certified copy of the latest R.O. monitoring report shall also be submitted.	Will be obtained
Specific webpage address where all EC related documents (including	<a href="https://sjvn.nic.in/">https://sjvn.nic.in/</a>

monitoring and compliance related reports/documents) of the specific project under consideration are /will be available. Also contact details of PP's officer responsible for updating this webpage/ information.			
Co-ordinates of all four corners of TPP Site:	<b>Pillar N o.</b>	<b>Latitudes</b>	<b>Longitudes</b>
	A	25°28'55.84"N	83°52'31.18"E
	B	25°28'59.65"N	83°53'18.52"E
	C	25°28'18.26"N	83°53'21.78"E
	D	25°27'21.61"N	83°53'11.46"E
	E	25°27'37.14"N	83°52'19.06"E
	F	25°28'25.76"N	83°52'23.46"E
Average height of: (a) TPP site, (b) Ash pond site etc. above MSL	Above means sea level (MSL) (a) 65.52 m (b) 56 m		
Whether the project is in the Critically Polluted Area (CPA) or within 10 km of CPA. If so, the details thereof:	No,		
CRZ Clearance	No,		
Cost of the Project (As per EC and revised):  Cost of the proposed activity in the amendment:	<b>Total Cost:</b> Rs. 16,909.30 Crores <b>Existing:</b> Rs. 10,520.48 Crores  <b>Proposed:</b> Rs. 6,388.82 Crores		
Employment Potential for entire project/ plant and employment potential for the proposed amendment (specify number of persons and quantitative information).	During Construction Phase :5550 Nos During Operation Phase: 4500 Nos.		
Benefits of the project (specify quantitative information)	<ul style="list-style-type: none"> <li>• Fulfill power demand of the country by 1980 MW power generation.</li> <li>• Employment generation of 4500 Nos. of employee.</li> </ul>		

#### 4. Electricity generation capacity:

Capacity & Unit Configurations:	1320 MW + 660 MW
Generation of Electricity Annually	9828 + 4914 = 14742 Million Unit

## 5. Details of fuel and Ash disposal

Fuel to be used:	Coal & LDO
Quantity of Fuel required per Annum:	Annual coal requirement for the plant shall be 4.97 MTPA (For Stage - I) 3.10 MTPA (For Stage - II)
Coal Linkage / Coal Block: (If Block allotted, status of EC & FC of the Block)	<ol style="list-style-type: none"> <li>1. Fuel Supply Agreement (FSA) was signed between STPL and CIL/CCL for Long-term coal linkage to Buxar TPP (2x660 MW) on 26.07.2023 for supplying of 4.976 Million MTPA of G-9 to G14 Grade coal.</li> <li>2. Meeting of Standing Linkage Committee (Long Term) of MoP, Govt was held on 16.06.2023. As per the minutes of meeting, the Standing Linkage Committee (Long Term) has recommended for Long Term Coal Linkage to Stage-2, BTTP.</li> </ol>
Details of mode of transportation of coal from coal source to the plant premises along with distances	<p>Proposed- The transportation of Coal for Buxar Stage-II (1X660 MW) is proposed through existing rail network.</p> <p>Existing - Imported and Domestic coal will be transported through rail. Eastern Central Railways provided in-principle approval for railway siding vide letter dated 29.09.2015</p>
Fly Ash Disposal System Proposed	<p>Pneumatic conveying system shall be employed for extraction of fly ash from the electrostatic precipitator hoppers in dry form. This dry ash shall be taken to buffer hoppers of unit located near to ESP. Dry ash from buffer hoppers shall be transported to main storage silos. The main ash storage silos shall be placed on the rail line for further utilization through rail wagons. There shall be two nos. of new ash silos in the existing silo area. The storage capacity of each silo shall be approx. 1800 m<sup>3</sup>. The user industries shall take the dry fly ash from these silos in closed tankers/Rail wagons/Open trucks.</p> <p>For wet disposal of dry ash extracted from various ESP hoppers, the same shall be diverted through feeder ejector to ash slurry pump house.</p>

Ash Pond/ Dyke (Area, Location & Co-ordinates) Average height of area above MSL (m)	<p><b>Existing</b> - Ash Pond Area - 282 acres 25°28'36.46"N to 25°28'48.73"N, &amp; 83°52'39.77"E to 83°52'52.98"E MSL (m): 83 – 88 meter</p> <p><b>Proposed</b> - Ash pond Area - 165 acres 25°27'8.00"N to 25°27'15.50"N &amp; 83°52'57.77"E to 83°53'11.47"E MSL(m): 88 – 89 meter</p>
Quantity of Fly Ash to be generated Bottom Ash to be generated:	<p>a. 2.74 MTPA b. 1.614 MTPA</p>
Fly Ash utilization (details)	<p>Pneumatic conveying system (either vacuum system or pressurized system) shall be employed for extraction of fly ash from the electrostatic precipitator hoppers in dry form. This dry ash shall be taken to buffer hoppers of unit located near to ESP. Dry ash from buffer hoppers shall be transported to main storage silos. The main ash storage silos shall be placed on the rail line for further utilization through rail wagons.</p> <p>There shall be two nos. of new ash silos in the existing silo area. The storage capacity of each silo shall be 1800 m<sup>3</sup>. The user industries shall take the dry fly ash from these silos in closed tankers/Rail wagons/Open trucks.</p> <p>For wet disposal of dry ash extracted from various ESP hoppers, the same shall be diverted through feeder ejector to ash slurry pump house.</p> <p>EOI for fly ash utilization is obtained from Rural Work Development, Govt. of Bihar vide letter no. BRRDA (HQ) PMGSY-581/2015/65 dated 07.01.2016, Road Construction department, Bihar vide letter no. Sec-11/Vividth-03-41/2015-192 dated 08.01.2016 &amp; other private companies like R. S. Mishra Enterprises, Lafarge, Dalmia Bharat Cement etc.</p>
Stack Height (m) & Type of Flue	<p><b>Proposed-</b> Existing - Stack Height - 225.52 m (For stage - II) &amp; 275 m (For Stage - I) Type of flue - Flue Gas Desulphurization (FGD) and Selective Catalytic Reduction (SCR) shall be installed in</p>



	the proposed Thermal Power Plant.
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## 6. Water Requirement:

Source of Water:	The makeup water for the project is proposed to be drawn from River Ganga a distance of about 5kms.
Quantity of water requirement:	<b>During Construction Phase:</b> Existing: 200 KLD Proposed: 100 KLD. <b>During Operation Phase:</b> Existing: 134561 KLD (55 Cusec). Proposed: 73397 KLD (30 Cusec).
Distance of source of water from Plant:	5 km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	Intake well
Mode of conveyance of water:	Pipeline
Status of water linkage:	Water permission from Central Water Commission, Irrigation Planning (North), Govt. of Bihar issued vide letter no. 7/2/2BH (10)/2010 IP (N)/585-587 dated 24.09.2010 for 55 cusecs. Permission for additional 30 cusec will be obtained.
(If source is Sea water) Desalination Plant Capacity	NA
Mode / Management of Brine:	NA
Cooling system	Induced Draft Cooling Tower

## 7. Land Area Breakup:

Land Requirement: a. TPP Site b. Ash Pond c. Township d. Railway Siding & Others e. Raw Water Reservoir f. Green Belt g. others Total (if expansion state additional land requirement)	Description	Areas in Acres		
		Existing	Proposed	Total
	Main plant, BOP & CHP & Misc. facilities	450	0	450
	Ash Disposal area	282	165	447
	Green Belt	178	0	178
	Township	95	0	95

	Land for miscellaneous facilities like roads, etc.	60	0	60
	Lay down area (converted in green belt after Construction)	0	80	80
	<b>Total</b>	<b>1065</b>	<b>245</b>	<b>1310</b>
	Railway siding and water pipeline Corridor	225	5	230
Status of Land Acquisition:		Land for Stage-I is already acquired and land for Stage-2 is under identification.		
Status of the project:  If under construction phase: please specify the reasons for delay, works completed till date and balance works along with expected date of completion. If under operation phase, date of commissioning (COD) of each unit. Whether the plant was under shutdown since commissioning, details and reasons.		Stage - I is in under construction.		
Break-Up of land-use of TPP site: a. Total land required for project components b. Private land c. Government land d. Forest Land		Land required for Expansion i.e 250 Acres, is total private land.		

## 8. Presence of Environmentally Sensitive areas in the study area

ForestLand/ProtectedArea/ EnvironmentalSensitivityZone	Yes/No	Details Certificate/ letter/ Remarks
Reserve Forest /Protected Forest Land	No	
National Park	No	
Wildlife Sanctuary	No	

Archaeological sites monuments/ historical temples etc	No	
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites, Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:	Ganga River ~ 5 km in North Direction Karamnasa ~ 1 km in NW direction	
Additional information (if any)	NA	

#### Availability of Schedule-I species in study area

#### 9. Court case details:

Any litigation/ Court Case pertaining to the project	<b>Yes</b> 1. Two (02) Acre of land belonging to K.K. Tiwari & Ganesh Tiwari of main plant area is under trial at double bench of Patna, High Court. The trial is between DistrictAdministration/Bihar State Vs K.K Tiwari & Ganesh Tiwari in this regard decision/judgment of court is still awaited.  2. Cases pertaining to compensation of land related to Rail & Water Corridor is pending with LARRA, Patna since January 2023. The same is also between District Administration, Buxar and related land owners.
Is the proposal under any investigation? If so, details thereof.	No
Any violation case pertaining to the project:	No
Additional information (if any)	No

**5.4.3** Earlier the proposal was considered by the EAC in 2<sup>nd</sup> meeting held on 31st October, 2023 and 01st November, 2023 and deferred the proposal seeking additional information along with site visit by the sub-committee. PP vide letter dated 24.01.2024 submitted the ADS reply on Parivesh on following points after the Sub-Committee of EAC has visited the Project site from 04.01.2024 to 06.01.2024.

**Query 1: Re-submit the ash pond area in Ha in terms of MoEF&CC latest notification. Environmental sensitivity and land use pattern of all alternative areas for location of ash pond area shall be submitted.**

**Reply:** The ash pond area for under-construction 1320 MW BTPP is 114 Ha. while that for proposed expansion unit of 1x660 MW is 67 Ha. That is total area for ash pond is 181 Ha for 1980 MW, which is less than the maximum area allowed for ash dyke i.e. 0.1 Ha. Per Mega Watt. Total 3no. alternative locations for ash pond area of 1x660 MW expansion unit has been identified as per KML file attached (Annexure - I). As per environment sensitivity analysis (Annexure - IH), the alternative-2 land area proposed to be finalized as it is located at a distance of 1.82 Km from National Highway, 3.16 Km from nearby Karamnasa River, 6.5 Km from Ganga River and 790 m from nearest habitation. The nearest Govt. school is located at a distance of 920 m from this alternative

**Query 2: Impact assessment of existing as well as proposed location school, hospital, and other environmental sensitive area within 10km radius of the project boundary.**

**Reply:** Detailed impact assessment of existing as well as proposed location like school, hospital, and other environmental sensitive area will be carried out during EIA study and the same will be incorporated in EIA/EMP Report of Proposed Expansion Project.

**Query 3: Action plan for development of 3 layer peripheral greenbelt.**

**Reply:** The total land acquired for 2x660 MW BTPP is 51943 Ha which includes 171.41 Ha. of greenbelt area (as per 33% norms) Out of this 171.41 Ha. of greenbelt area, 147 Ha shall be developed within the plant boundary as depicted in Greenbelt map enclosed as Annexure - IHI and IV. Further, plantation is proposed in more than the requisite requirement of 24 Ha. area along the rail and water corridor. The proposed plantation schedule for development of green belt area over 171.41 Ha considering construction activities is as under:

Sr. No.	Area (Ha.)	No. of Saplings	Time line for plantation
1.	6.24	15600	Plantation will be done by Jan '24/Feb 24
2.	8.0	20000	Plantation will be done during Q3 (Monsoon season) 2024
3.	64.35	160875	Plantation in MGR area shall be done after completion of rail infra arrangement.
4.	92.82	232050	Plantation will be done after completion of all plant activities.



<b>Total</b>	<b>171.41</b>	<b>428525</b>	
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For 1x660 MW expansion unit, an additional land of 34 Ha shall be acquired for greenbelt along with 66.8 Ha. proposed for the ash pond meeting the minimum 33% greenbelt requirement.

**Query 4: Scientific reasoning for location of Installed Online Monitoring Stations as per accurate air modelling.**

Reply: Online continuous Monitoring Station as per accurate air modelling will be established during operation phase of the project.

However, as suggested by EAC, 2 Nos. additional AAQMS have been established in the predominant wind direction and Ambient Air Quality monitoring started from 10.11.2023 in addition to existing 8 Nos. of Ambient Air Quality monitoring locations (Annexure -V).

The collection of baseline data of Air, Water and Noise was started from 15.09.2023 and stand completed on 15.12.2023

The Sub-Committee of EAC has visited the Project site from 04.01.2024 to 06.01.2024, observations of the EAC are as follows:

(i) The EC was granted on February 28, 2017 for the 2 x 660 MW (1320 MW) Thermal Power Plant; however, the project is still in the construction phase and will require at least 10 to 12 months to complete and become functional.

(ii) Plantation efforts thus far have been insufficient and dispersed in the plant area and its environs. Roadside areas situated within the plant location are also devoid of vegetation. The Subcommittee members have conveyed their profound apprehension regarding this matter and have instructed the PP to expedite the plantation work in accordance with the specified schedule, in addition to allocating sufficient funds for the plantation programme. The PP has guaranteed the planting of over 15,000 plants within the allotted time of two months.

(iii) The members also visited the suggested ash pond site and found it suitable.

(iv) Additionally, the members paid a visit to the hospital and school, both of which are in close proximity to the plant site's perimeter. The school, situated in close proximity to the village of Sikraur, is observed to be approximately 300 metres from the plant's boundary and over 1 kilometre from the main plant. Furthermore, the education department has not granted recognition to the school, which is currently housed in a shed structure. There were no students present during

school time. The aforementioned medical facility, situated in the village of Akhauipur Gola, is merely a "Clinic for Medical Consultation" and not a comprehensive hospital. This facility is approximately 400 metres from the plant's boundary.

(v) Members also visited the Skill Development Training Site for women. For this centre the SJVN has given Rs. 30.00 lakh for skill development of the local people.

Remark of Sub-committee:

**(A) Remarks related to earlier EC granted for 2 x 660 MW (1320 MW) TPP:**

(i) Additionally, the Committee noted that environmental clearance was granted for the project in 2017. Subsequent developments have been observed concerning the acquisition and connection of coal to the thermal facility, its storage and transportation, the construction of a railway siding, and the integration of a Merry-go-Round (MGR) Railway within the facility. It is viewed that the Project Proponent may appraise to the Ministry on all these points where such changes are contemplated in the project, and which are not mentioned in the environment clearance granted to the project earlier.

(ii) In addition, the Sub-Committee directed that the project proponent should submit to the Ministry an Action Plan for the development of the Green Belt, which would include the plantation implementation schedule, the name of the implementing agency, and budgetary provisions/allocations.

(iii) The Sub-Committee reaffirmed the importance of strictly enforcing all environmental safety measures in the ash pond, including the installation of HDPE lining and the reinforcement of civil structures to strengthen the ash pond's bunding and detect any potential breaches or seepage.

(iv) Committee also made observation on Buddha nala passing through the project area. It was observed by the Committee that Buddha nala passes through the project area. The project proponent has taken measures to divert the nala flowing through the plant premises. The Sub- committee made following observations which project proponent must follow.

(1) The water of the Buddha Nala shall not be utilised under any circumstances, and it shall be permitted to flow freely without obstruction or storage within the facility.

(2) The Project Proponent shall monitor the nala water flow as following ways.

(a) The monthly volume of water flowing through the Buddha Nala, as measured by a flow metre.

(b) Monthly water quality should be taken at both the entry and exit locations of thermal power plant area.

**(B) Remarks related to proposed TOR for expansion proposal of 1 x 660 MW TPP:**

The Sub-committee members are in opinion that the TOR may be considered by the EAC with the special emphasis on:

- a. Green belt development in time bound manner should be completed.
- b. Adequate budgetary provision for plantation work should be allotted.
- c. Disaster Management Plan should be prepared in detail as the area is falling under Seismic Zone IV.
- d. Systematic EIA/EMP and appropriate control measures specially focussing on environmentally sensitive locations (school, college, hospitals etc.) should be done.

**5.4.4 The EAC during deliberations noted the following:**

The proposal is for grant of Terms of Reference (ToR) to the project for conducting EIA study for proposed construction of the Expansion from 1320 MW to 1980 MW Buxar Thermal Power Project by installing 1x660 MW plant unit Near Chausa, district Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd.

The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, as amended as the power generation capacity of proposed expansion is beyond threshold capacity of 500 MW i.e. 660 MW and requires appraisal at Central level by the sectoral EAC in the Ministry. The EAC noted that UP-Bihar boundary is 1.2km away from the project boundary.

The EAC deliberated about quality of road leading towards SJVN office as it not easily approachable and plantation that will be carried out on upcoming months. Accordingly, the PP vide email dated 14.02.2024 submitted the following:

1. The road leading to office of SJVN will be completed by 31<sup>st</sup> March 2024.
2. 15600 plants as target to be planted during Jan/Feb 2024 will be completed by planting saplings by 31st March, 2024.

**5.4.5** The EAC 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 Consultation (Hearing& Written submission) to the project for construction of the Expansion from 1320 MW to 1980 MW Buxar Thermal Power Project by installing 1x660 MW plant unit Near Chausa, district Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd. under the provisions of the EIA Notification, 2006, as amended along with the following additional/specific ToR:

**[A] Environmental Management and Biodiversity Conservation**

- 1) Wildlife conservation plan shall be prepared, in consultation with State forest and wildlife department, with adequate fund for wildlife habitat management, preserving wildlife and its corridors and be submitted along with EIA/EMP report. Human-Wildlife Conflict issue shall be studied and such incidences reported in the study area during last 10 years shall be submitted. No provision for purchasing the vehicle shall be made in the wildlife conservation plan.
- 2) 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 same shall be included in EIA/EMP report.
- 3) Details of the existing rail, road networks and alignment of transmission lines along with quantity of coal being transported/to be transported for existing units and proposed expansion, its source and transportation mode shall be submitted.
- 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.
- 5) A comparative chart shall be prepared with changes observed from previous baseline study and present baseline study.
- 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 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.

- 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 video clip of existing green belt. Plan shall be dully approved by the DFO.
- 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.
- 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.
- 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.
- 11) Details of Dry Ash handling system along with supplementary coal handling system shall be submitted.
- 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.
- 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.
- 14) Baseline Study for Heavy metals in Ground water, Surface water and soil to be carried out and incorporated in EIA/EMP report.
- 15) Details pertaining to water source, treatment and discharge should be provided.
- 16) Zero Liquid Discharge plan shall be submitted.
- 17) PP shall submit action plan for using treated Sewage/Domestic wastewater for its operations.
- 18) Project Proponent to conduct Environmental Cost Benefit Analysis for the project in EIA/EMP Report.

- 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.
- 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.

#### **[B] Disaster Management**

- 1) Disaster Management Plan shall be prepared and incorporated in EIA/EMP report.

#### **[C] Socio-economic Study**

- 1) 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.
- 2) 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). 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.
- 3) Demographic details in 10 km area shall be submitted.

#### **[D] Miscellaneous**

- 1) Certified compliance report of previous EC to be submitted certified by Regional office of the MoEF&CC. IRO 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.
- 2) 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) PP shall submit details of court cases and its status for the project.

- 4) The PP should submit the photograph of monitoring stations & sampling locations. The photograph 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.
- 5) 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.
- 6) 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.
- 7) Arial view video of project site and transportation route proposed for this project shall be recorded through drone and be submitted.
- 8) 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.
- 9) 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.
- 10) PP shall address the recommendation of sub-committee while preparing EIA/EMP and submit its compliance.

#### **Agenda Item No.5.5**

**Expansion of Lignite Based Super Critical CFBC Thermal Power Plant from “1080 MW to 2160 MW” by Installing 1080MW (3 X 360 MW) Unit in existing land area 479.9 Ha located at Village BhadresGandhav, District Barmer, Rajasthan by M/s Jsw Energy Barmer Limited – Terms of References (TOR) - reg.**

**[Proposal No. IA/RJ/THE/459867/2024; F. No. J-13011/58/2006-IA-II(T)]**

**5.5.1** The proposal is for grant of Terms of Reference (ToR) to the project for Expansion of Lignite Based Super Critical CFBC Thermal Power Plant from “1080 MW to 2160 MW” by Installing 1080MW (3 X 360 MW) Unit in existing land area 479.9 Ha located at Village BhadresGandhav, District Barmer, Rajasthan by M/s Jsw Energy Barmer Limited.

**5.5.2** The Project Proponent and the accredited Consultant M/s. EQMS Global Pvt. Ltd., (Accreditation valid till: 23/11/2025) made a detailed presentation on the salient features of the project and informed that:

- i. The proposal is for ToR to the project for Expansion of lignite based super critical CFBC thermal power plant from “1080 MW to 2160 MW” by installing 1080 MW (3 x 360 MW) unit located at Village Bhadresh, Tehsil & Dist. Barmer, Rajasthan by M/s JSW Energy (Barmer) Limited (JSWEBL) (Subsidiary of JSW Energy Ltd.).
- ii. All Thermal Power Plants 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 salient features of the project are as follows:

**1. Project details:**

Name of the Proposal	Expansion of Lignite Based Super Critical CFBC Thermal Power Plant from “1080 MW To 2160 MW” by Installing 1080 MW (3 X 360 MW) Unit in existing 1080 MW plant at Bhadresh, Barmer, Rajasthan.
Proposal No.	IA/RJ/THE/459867/2024
Location	Village & Post-Bhadresh, District-Barmer, Rajasthan
Company's Name	M/s JSW Energy (Barmer) Limited (JSWEBL)
Accredited Consultant and certificate no.	M/s EQMS Global Pvt. Ltd. (NABET Accreditation Number: NABET/EIA/2225/RA 0303 Valid Upto- 23.11.2025)
Inter- state issue involved	Not Applicable
Seismic zone	Zone – III (Moderate Risk Zone)

**2. Category details:**

Category of the project	1 (d)Thermal Power Plants
Capacity	Existing – 1080 MW Expansion – 1080 MW (3X360 MW) <b>Cumulative Capacity – 2160 MW</b>
Attracts the General Conditions (Yes/No)	No



Additional information (if any)	No
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### 3. Project description:

If expansion, the details of ECs (including amendments and extension of validity) of existing Units etc.	S. No.	Type of Approval	F. No./ Order No.	Details
	1.	Water Permission	JSWBL has agreement of 80 Cusecs of water from Indira Gandhi Nahar Pariyojana through Government of Rajasthan	
	2.	Environmental Clearance	F. No. J-13011/58/2006-IA-II(T) dt:20th July 2007	8X125 (1000) MW Coal Based Thermal Power Plant
	3.	EC Amendment/ Extension	File no: J-13011/58/2006-IA-II(T) dt:19 Nov-2009	8X135 (1080) MW Coal Based Thermal Power Plant
	4.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5821-5823 dated 5 Dec-2023	270 MW Unit – 1 & 2
	5.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5925-5927 dated 8 Dec-2023.	270 MW Unit – 3 & 4
	6.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6524-6526 Dt; 10 Feb-2022	270 MW Unit – 5 & 6
	7.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6527-6529 Dt; 10 Feb-2022	270 MW Unit – 7 & 8
	8.	Certified EC Compliance	29-Aug-2022 by IRO Jaipur	1080 MW (8 X135 MW) Unit 1 to 8

Amendments granted, if Yes details	Yes		
	EC Amendment/ Extension	File no: J-13011/58/2006-IA-II(T) dt:19 Nov-2009	8X125 (1000) MW to 8X135 (1080) MW Coal Based Thermal Power Plant
Expansion / Green Field (new): (IPP / Merchant / Captive):	Expansion		
If expansion, the date of latest monitoring done by the Regional Office (R.O) of MoEF&CC for compliance of the conditions stipulated in the environmental and CRZ clearances of the previous phases. A certified copy of the latest R.O. monitoring report shall also be submitted.	Shall be taken after grant of TOR.		
Specific webpage address where all EC related documents (including monitoring and compliance related reports/documents) of the specific project under consideration are/will be available. Also contact details of PP's officer responsible for updating this webpage/information.	-		
Co-ordinates of all four corners of TPP Site:	<b>A:</b> 25°54'23.25"N , 71°19'5.22"E <b>B:</b> 25°54'27.92"N , 71°20'19.46"E <b>C:</b> 25°53'11.37"N , 71°20'20.39"E <b>D:</b> 25°53'7.52"N , 71°19'9.69"E		

Average height of: (a) TPP site, (b) Ash pond site etc. above MSL	(a) 200-210 m (b) 210 m
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:	Proposed Rs. 7560 Crores
Employment Potential for entire project/plant and employment potential for the proposed amendment (specify number of persons and quantitative information).	<b>During construction phase:</b> 1000 nos. of workers <b>During Operation Phase:</b> 180 nos. employees
Benefits of the project (specify quantitative information)	<ul style="list-style-type: none"> <li>• It will fulfill the demand supply gap of power.</li> <li>• It will ease the dependency of import of power within the state.</li> <li>• It is expected to generate additional revenue for state/central government.</li> <li>• It will generate employment.</li> </ul>

#### 4. Electricity generation capacity:

Capacity & Unit Configurations:	Existing Unit: 8 x 135 MW (1080 MW)  Proposed Unit: 3 x 360 MW (1080 MW)
Generation of Electricity Annually (Proposed Project)	Net Generation: 7258 MUs per year (85% PLF)

#### 5. Details of fuel and Ash disposal

Fuel to be used:	Lignite Coal
Quantity of Fuel required per	6.65 MMT/annum for 3X360 MW TPP.

Annum:	
Coal Linkage / Coal Block: (If Block allotted, status of EC & FC of the Block)	JSWEL presently has a fuel supply agreement with Barmer Lignite Mining Company Limited for supply of lignite from the captive mines of Jalipa and Kapurdi lignite mines for the existing operational plant of 8x135 MW. For proposed expansion, the lignite shall be supplied from the same source. Lignite is being transported through conveyor belt, same will be followed for the proposed expansion. Coal linkage agreement was made with Barmer Lignite mining company limited on 19.01.2011.
Details of mode of transportation of coal from coal source to the plant premises along with distances	Mode of transportation: Conveyor Belts Distance from Source: Around 2.5 Kms Source of Lignite coal: Jalipa-Kapurdi Lignite Mines
Fly Ash Disposal System Proposed	Yes (Fly ash shall be utilized for cement & brick making)
Ash Pond/ Dyke (Area, Location & Co-ordinates) Average height of area above MSL (m)	Ash Pond: Existing Ash Pond area: 44 acres (No additional ash pond required). Co-ordinate: 25°53'11.90"N & 71°19'26.31"E 25°53'40.54"N & 71°20'18.62"E Average height of area above MSL (m): 210 m
Quantity of a. Fly Ash to be generated. b. Bottom Ash to be generated:	Quantity of a. Fly Ash to be generated: 7,449.6 TPD. b. Bottom Ash to be generated: 1,862.4 TPD
Fly Ash utilization (details)	It shall be sent to Cement Manufacturer.
Stack Height (m) & Type of Flue	Stack Height: 125 m Type of Flue: Tri Flue

## 6. Water Requirement:

Source of Water:	Indira Gandhi Nahar Pariyojana (IGNP) canal
Quantity of water requirement:	Existing – 90720 KLD Expansion – 62900 KLD
Distance of source of water from Plant:	185 Km
Whether barrage/ weir/ intake well/ jack well/ others proposed:	No
Mode of conveyance of water:	Pipeline
Status of water linkage:	Obtained
(If source is Sea water) Desalination Plant	No
Mode / Management of Brine:	Not Applicable
Cooling system	Cooling Towers



## 7. Land Area Breakup:

Land Requirement: a) TPP Site b) Ash Pond c) Township d) Railway Siding & Others e) Raw Water Reservoir f) Green Belt g) others Total (if expansion state additional land requirement)	S. No.	Particulars	Area of Existing plant (Ha.)	Area of Proposed plant (Ha.)									
	1.	Main Plant	16.18	16.18									
	2.	Water system and treatment system	8.09	8.09									
	3.	Lignite handling, ash handling, rail, road	16.18	16.18									
	4.	Green belt for power plant	159.44	0									
	5.	Ash Pond	17.80	0									
	6.	Other	167.13	54.63									
		Total	384.82	95.08									
*Available land of 95.08 Ha. (235 acres) out of existing total land 479.9 Ha. (1186 acres) will be utilized for proposed 1080 MW (3 X 360 MW). No additional land is required.													
Status of Land Acquisition:	Acquired												
Status of the project:  If under construction phase: please specify the reasons for delay, works completed till date and balance works along with expected date of completion.  If under operation phase, date of commissioning (COD) of each unit. Whether the plant was under shutdown since commissioning, details	Existing project in under operation and the Project is commissioned in 2009. Latest CTO was granted from RSPCB as details below; <table><tr><td>Consent to Operate</td><td>Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5821-5823 dated 5 Dec-2023</td><td>270 MW Unit – 1 &amp; 2</td></tr><tr><td>Consent to Operate</td><td>Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5925-5927 dated 8 Dec-2023.</td><td>270 MW Unit – 3 &amp; 4</td></tr><tr><td>Consent to Operate</td><td>Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6524-6526 Dt; 10 Feb-2022</td><td>270 MW Unit – 5 &amp; 6</td></tr></table>				Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5821-5823 dated 5 Dec-2023	270 MW Unit – 1 & 2	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/5153(1)/2023-2024/5925-5927 dated 8 Dec-2023.	270 MW Unit – 3 & 4	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6524-6526 Dt; 10 Feb-2022	270 MW Unit – 5 & 6
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Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6524-6526 Dt; 10 Feb-2022	270 MW Unit – 5 & 6											

and reasons.	Consent to Operate	Order No: F(Tech)/Barmer(Barmer)/3(1)/2008-2009/6527-6529 Dt; 10 Feb-2022	270 MW Unit – 7 & 8
Break-Up of land-use of TPP site: a. Total land required for project components. b. Private land c. Government land d. Forest Land	Break-Up of land-use of TPP site:		
	<b>Land Available</b>	<b>Land Required</b>	<b>Total Land</b>
Private Land	479.95	0	479.95
Government Land	0	0	0
Forest Land	0	0	0

### 8. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Remark
Reserve Forest/Protected	No	-
Forest Land	No	-
National Park	No	-
Wildlife Sanctuary	No	-
Archaeological sites monuments/historical temples etc.	No	-
Names & distance of National parks, Wildlife sanctuaries, Biosphere reserves, Heritage sites Rivers, Tanks, Reserve Forests etc. Located within 10 Km from the plant boundary:	No	-
Additional information (if any)	No	-

### 9. Court case details:

Any litigation/ Court Case pertaining to the project	No
Is the proposal under any investigation? If so, details thereof.	No
Any violation case pertaining to the project:	No
Additional information (if any)	No

- iv. Effluent of 6855 KLD quantity during expansion will be treated through 8500 KLD Effluent Treatment Plant. The plant will be based on Zero Liquid Discharge system.

- v. Power requirement during expansion will be 5 MW for Construction & 40 MW for Commissioning and will be met from own existing plant. Existing unit has 6 DG sets of 1000 KVA capacity, additionally 2X500 KVA DG sets will be used as standby during power failure. Stack (height 30 m) will be provided as per CPCB norms to the proposed DG sets.
- vi. Existing Plant has 8 no's Lignite Fired Boilers each having steam generation capacity of 440 TPH. Additionally, proposed project will have 3 no's Lignite Fired Boilers each having steam generation capacity of 1158 TPH. For the Proposed project, Electrostatic Precipitator (ESP) with a stack of height of 125 m will be installed for controlling the particulate emissions within the statutory limit of 30 mg/Nm<sup>3</sup> for the proposed boilers (Applicable for thermal sector projects).

### 5.5.3 The EAC during deliberations noted the following:

The proposal is for grant of Terms of Reference (ToR) to the project for conducting EIA study for proposed construction for Expansion of Lignite Based Super Critical CFBC Thermal Power Plant from "1080 MW to 2160 MW" by Installing 1080MW (3 X 360 MW) Unit in existing land area 479.9 Ha located at Village BhadresGandhav, District Barmer, Rajasthan by M/s JSW Energy Barmer Limited.

The project/activity is covered under category A of item 1(d) 'Thermal Power Plants' of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, as amended as the power generation capacity of proposed expansion is beyond threshold capacity of 500MW i.e. 1080 MW and requires appraisal at Central level by the sectoral EAC in the Ministry.

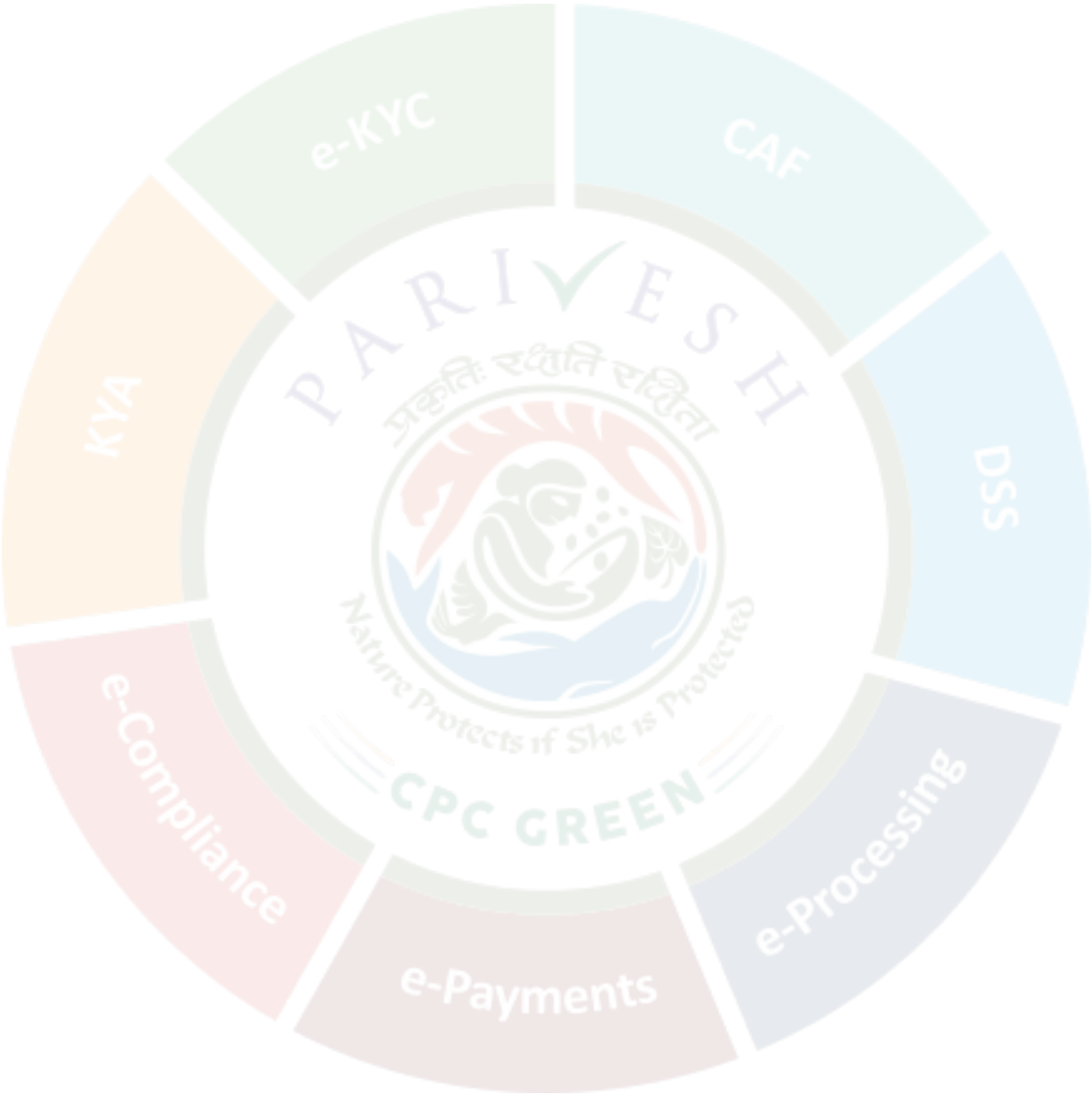
The EAC has noted that the Ministry of Power (MoP) guidelines specify the utilization of solely Indian-manufactured equipment in thermal power stations. Consequently, the PP has communicated to the EAC that they have conducted a rating for a proposed unit utilizing Circulating Fluidized Bed Combustion (CFBC) technology, which entails equipment manufactured in China.

The EAC has requested the PP to adjust the capacity of the proposed power plant in line with guidelines from Bharat Heavy Electricals Limited (BHEL), an Indian company, and to prepare the Pre-Feasibility Report (PFR) and other necessary details accordingly.

The proposal is therefore **deferred** on the above lines

The meeting ended with vote of thanks to the Chair.

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## **Report of the Site Visit from 04.01.2024 - 06.01.2024 (3 days) to Buxar Thermal Power Project Near Chausa, district Buxar, Bihar by M/s SJVN Thermal Pvt. Ltd.**

### **Background Information:**

Regarding the Terms of Reference (TOR) proposal received by the MoEFCC for the expansion of the Buxar Thermal Power Project from 1320 MW to 1980 MW through the installation of one x 660 MW plant unit near Chausa, district Buxar, Bihar, submitted by M/s SJVN Thermal Pvt. Ltd., the EAC decided at its 2nd meeting on October 31st and November 1st, 2023 to conduct a site visit in order to obtain the following additional information prior to rendering any recommendations on the proposal:

1. PP must resubmit in HA the ash pond area in accordance with the most recent MoEF&CC notification. The land use pattern and environmental sensitivity of each alternative area considered for the placement of the ash reservoir must be provided.
2. Impact assessment of existing and proposed environmentally sensitive areas, including schools, hospitals, and other facilities, within a 10-kilometer radius of the project boundary.
3. Strategy for the implementation of a three-tiered peripheral greenbelt.
4. A scientific rationale for the placement of online monitoring stations installed in accordance with precise air modelling.

As per office order number F. No. J-13012/69/2008-IA.I (T) dated 02.01.2024, the Ministry has formed a subcommittee consisting of four (4) members to conduct a site visit from January 4th to January 6th, 2024.

1. Shri Mahi Pal Singh, Member EAC
2. Prof. Shyam Shanker Singh, Member EAC
3. Prof. Vinod Agrawal, Member EAC
4. Shri M. Rajeshwar Prasad, Representative of IRO Ranchi

### **Site Visit Details and Observations by Sub-committee:**

1. In compliance of Ministry's office order, Sub-committee visited the project site during 4<sup>th</sup> to 6<sup>th</sup> January 2024.

2. The Sub-Committee reviewed and discussed on the concerns brought forth during its earlier meeting by EAC with CEO, CFO, and other executive members. The Sub-Committee also directed to submit additional information as required. In addition, Sub-Committee members conducted site visits to the facility and its environs in order to observe the conditions in practice.

3. The PP's reply on the desired additional information is as under:

S.No.	Additional Information desired by EAC	Reply from PP
1	Re-submit the ash pond area in Ha in terms of MoEF&CC latest notification. Environmental sensitivity and land use pattern of all	The ash - pond area for under construction 1320 MW BTTP is 114 Ha. while that for proposed



	alternative areas for location of ash pond area shall be submitted.	<p>expansion unit of 1 x 660 MW is 67 Ha. Total area for ash-pond is 181 Ha for 1980 MW, which is less than the maximum area allowed for ash dyke i.e. 0.1 Ha per MW.</p> <p>Total 3 no. alternative locations for ash pond area of 1 x 660 MW expansion unit has been identified as per KML. As per environment sensitive analysis, the alternative – 2 land area is proposed to be finalized as it is located at a distance of 1.82 km from National Highway, 3.16 km from nearby Karamnasa River, 6.5 km from Ganga River and 790 m from nearest habitation.</p>						
2	Impact assessment of existing as well as proposed location school, hospital, and other environmental sensitive area within 10 km radius of the project boundary.	Detailed impact assessment of existing as well as proposed locations like school, hospital, and other environmental sensitive areas will be carried out during EIA study and the same will be incorporated in EIA/EMP report of the proposed expansion project.						
3	Action plan for development of 3 layer peripheral greenbelt.	<p>The total land acquired for BTTP is 519.43 Ha which includes 171.41 Ha of greenbelt area (as per 33% norms). Out of this 171.41 Ha of greenbelt area, 147 Ha shall be developed within the plant boundary as depicted in "Greenbelt Map". Further, plantation is proposed in more than the requisite requirement of 24 Ha area along the rail and water corridor.</p> <p>The proposed plantation schedule for the development of greenbelt over 171.41 Ha (considering the ongoing construction activities) is as under:</p> <table border="1"> <thead> <tr> <th>Area</th><th>No. of Saplings</th><th>Time Line for Plantation</th></tr> </thead> <tbody> <tr> <td>6.24 Ha</td><td>15600</td><td>Plantation will be done by Jan/Feb., 2024</td></tr> </tbody> </table>	Area	No. of Saplings	Time Line for Plantation	6.24 Ha	15600	Plantation will be done by Jan/Feb., 2024
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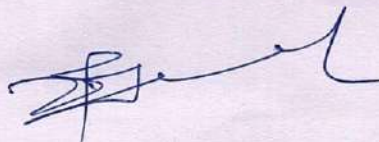



		8.00 Ha	20000	Plantation will be done during Q3 (Monsoon season) 2024
		64.35 Ha	160875	Plantation in MGR area shall be done after the completion of rail infra arrangement.
		92.82 Ha	232050	Plantation will be done after the completion of all plant activities.
		<b>171.41 Ha</b>	<b>428525</b>	
4	Scientific reasoning for location of Installed Online Monitoring Stations as per accurate air modelling.	<p>Online continuous Monitoring Station for accurate air modelling will be established during the operational phase of the project. However, as suggested by EAC, 2 (Two) Nos. additional AAQMS have been established in the predominant wind direction and Ambient Air Quality monitoring started from 10<sup>th</sup> November 2023, in addition to existing 8 Nos. of Ambient Air Quality monitoring locations.</p> <p>The collection of baseline data of Air, Water and Noise was started from 15.09.2023 and stand completed on 15.12.2023.</p>		

4. During the site visit, following observations have been made by the sub-committee members:

(i) The EC was granted on February 28, 2017 for the 2 x 660 MW (1320 MW) Thermal Power Plant; however, the project is still in the construction phase and will require at least 10 to 12 months to complete and become functional.

(ii) Plantation efforts thus far have been insufficient and dispersed in the plant area and its environs. Roadside areas situated within the plant location are also devoid of vegetation. The Subcommittee members have conveyed their profound apprehension regarding this matter and have instructed the PP to expedite the plantation work in accordance with the specified



schedule, in addition to allocating sufficient funds for the plantation programme. The PP has guaranteed the planting of over 15,000 plants within the allotted time of two months.

(iii) The members also visited the suggested ash – pond site and found it suitable.

(iv) Additionally, the members paid a visit to the hospital and school, both of which are in close proximity to the plant site's perimeter. The school, situated in close proximity to the village of Sikraur, is observed to be approximately 300 metres from the plant's boundary and over 1 kilometre from the main plant. Furthermore, the education department has not granted recognition to the school, which is currently housed in a shed structure. There were no students present during school time. The aforementioned medical facility, situated in the village of Akhaupur Gola, is merely a "Clinic for Medical Consultation" and not a comprehensive hospital. This facility is approximately 400 metres from the plant's boundary.

(v) Members also visited the Skill Development Training Site for women. For this centre the SJVN has given Rs. 30.00 lakh for skill development of the local people.

**Remark of Sub-committee:**

(A) Remarks related to earlier EC granted for 2 x 660 MW (1320 MW) TPP:

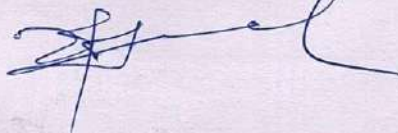
(i) Additionally, the Committee noted that environmental clearance was granted for the project in 2017. Subsequent developments have been observed concerning the acquisition and connection of coal to the thermal facility, its storage and transportation, the construction of a railway siding, and the integration of a Merry-go-Round (MGR) Railway within the facility. It is viewed that the Project Proponent may appraise to the Ministry on all these points where such changes are contemplated in the project, and which are not mentioned in the environment clearance granted to the project earlier.

(ii) In addition, the Sub-Committee directed that the project proponent should submit to the Ministry an Action Plan for the development of the Green Belt, which would include the plantation implementation schedule, the name of the implementing agency, and budgetary provisions/allocations.

(iii) The Sub-Committee reaffirmed the importance of strictly enforcing all environmental safety measures in the ash pond, including the installation of HDPE lining and the reinforcement of civil structures to strengthen the ash pond's bunding and detect any potential breaches or seepage.

(iv) Committee also made observation on Buddha nala passing through the project area. It was observed by the Committee that Buddha nala passes through the project area. The project proponent has taken measures to divert the nala flowing through the plant premises. The Sub-committee made following observations which project proponent must follow.

- (1) The water of the Buddha Naala shall not be utilised under any circumstances, and it shall be permitted to flow freely without obstruction or storage within the facility.
- (2) The Project Proponent shall monitor the nala water flow as following ways.
  - (a) The monthly volume of water flowing through the Buddha Nala, as measured by a flow metre.
  - (b) Monthly water quality should be taken at both the entry and exit locations of thermal power plant area.




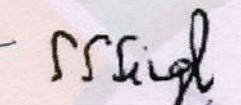


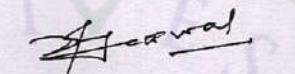
(B) Remarks related to proposed TOR for expansion proposal of 1 x 660 MW TPP:

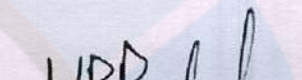
The Sub-committee members are in opinion that the TOR may be considered by the EAC with the special emphasis on:

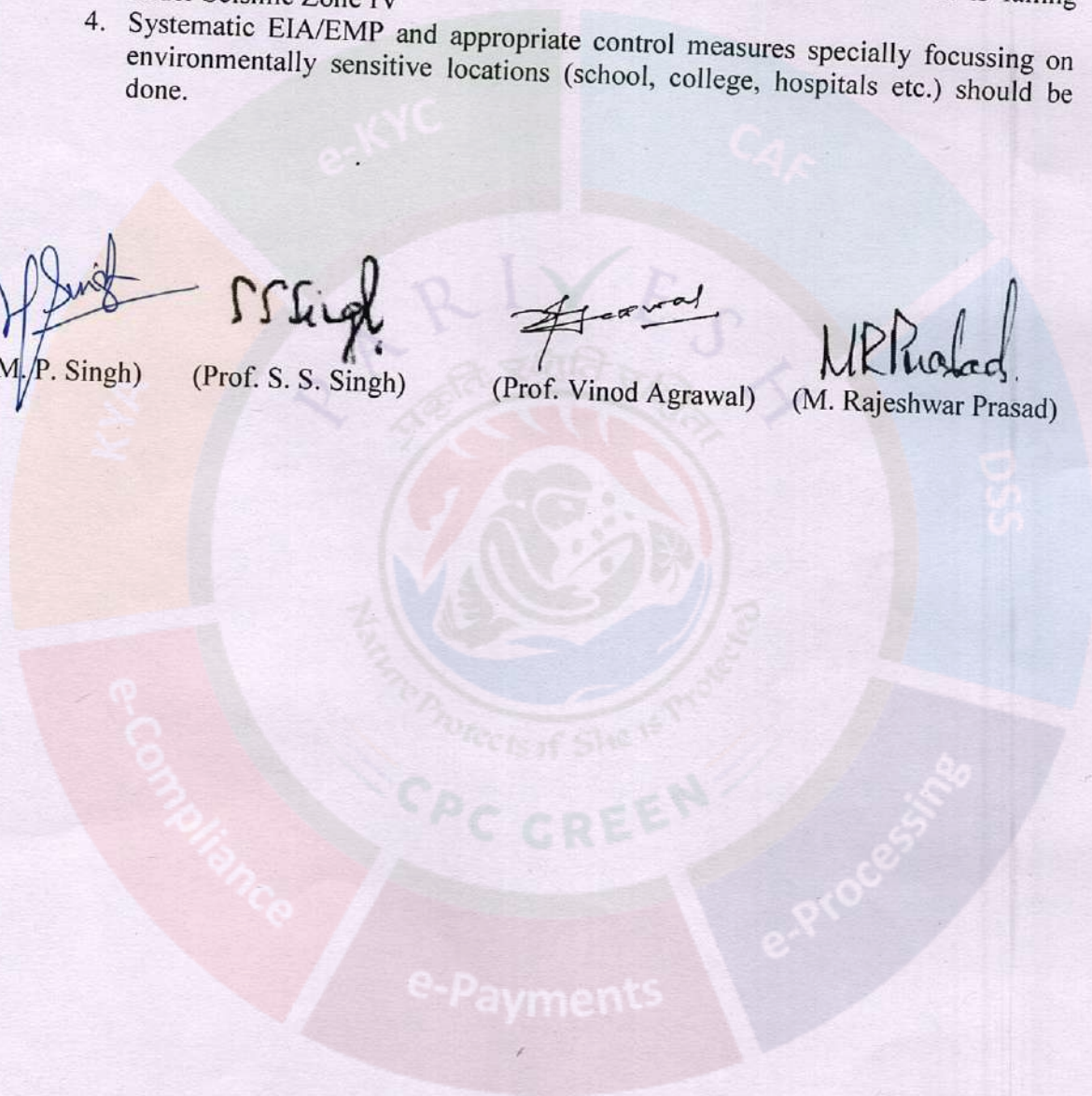
1. Green belt development in time bound manner should be completed.
2. Adequate budgetary provision for plantation work should be allotted.
3. Disaster Management Plan should be prepared in detail as the area is falling under Seismic Zone IV
4. Systematic EIA/EMP and appropriate control measures specially focussing on environmentally sensitive locations (school, college, hospitals etc.) should be done.

  
(M. P. Singh)

  
(Prof. S. S. Singh)

  
(Prof. Vinod Agrawal)

  
(M. Rajeshwar Prasad)





Site Visit Photographs



Sub-committee members having discussion with CEO

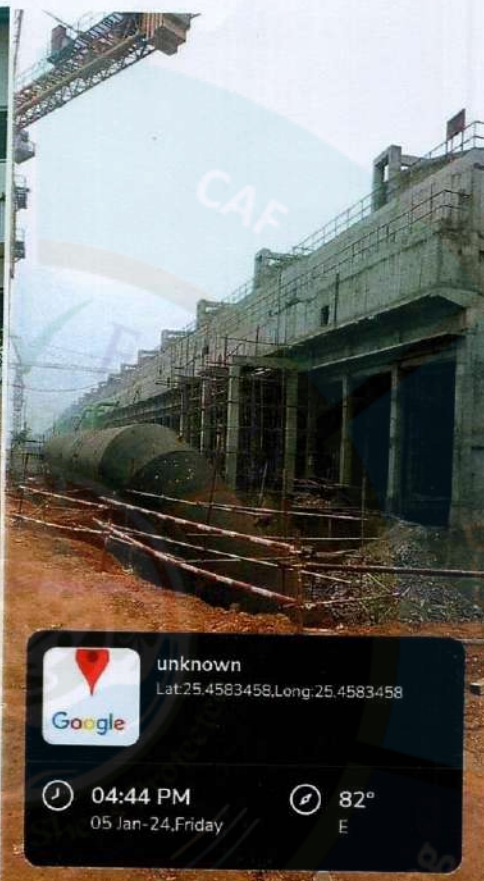


Sub-committee members having conversation with officers of SVNL

A handwritten signature in blue ink, appearing to be 'H. Singh'.



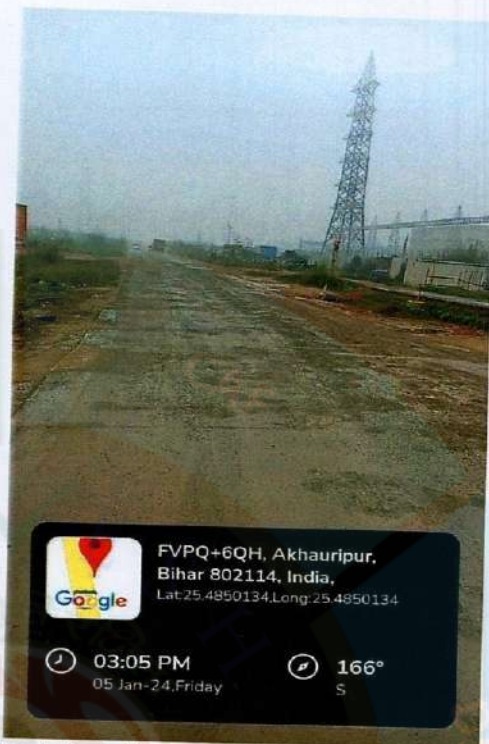
Site Visit by Members



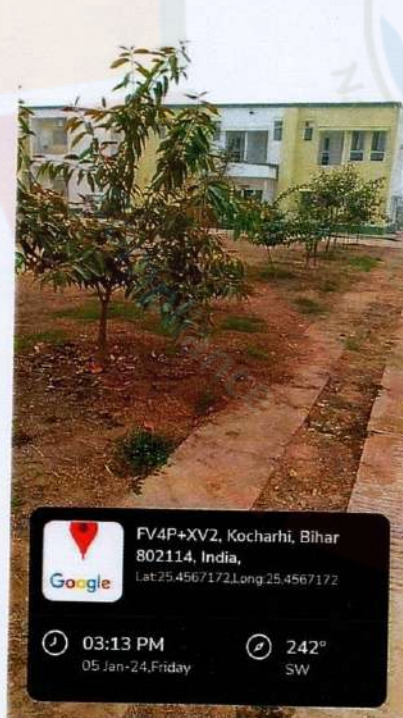
TPP under construction phase

*[Handwritten signature]*





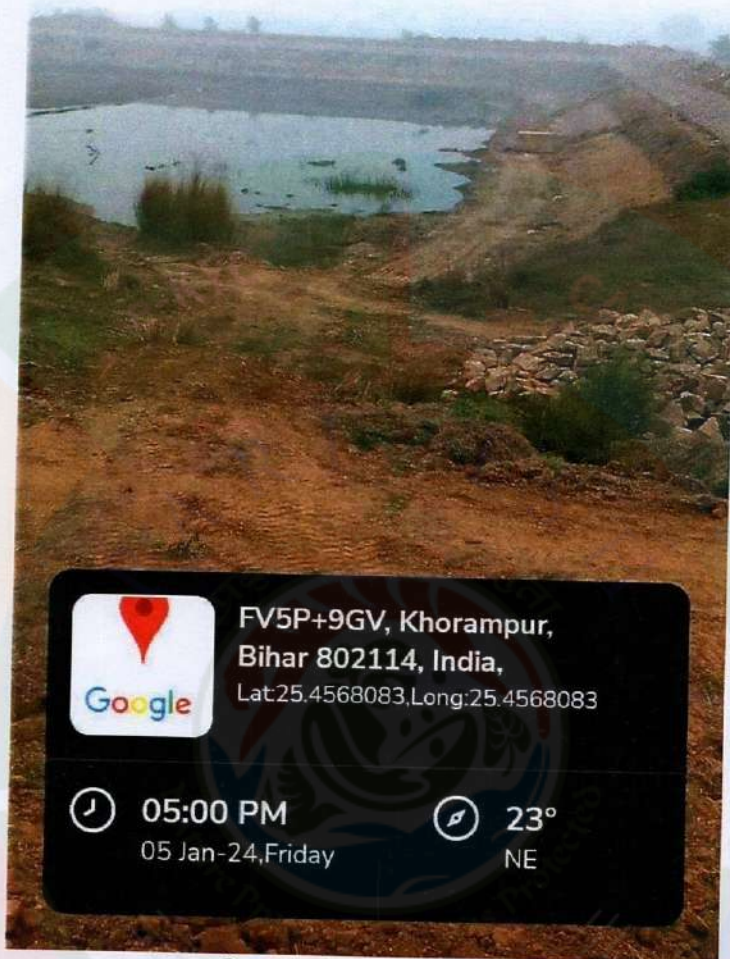
Plant's Roads without plantation



Inadequate plantation at the office and residential colony

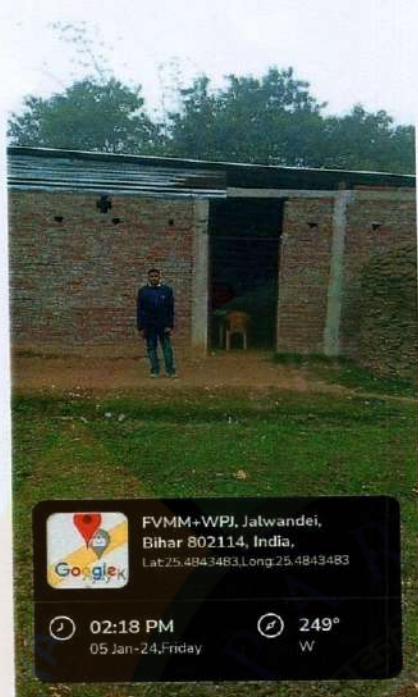
*[Handwritten signature]*





Proposed ash – pond site

*[Handwritten signatures]*



School located at Sikraur village (300 m from plant boundary)



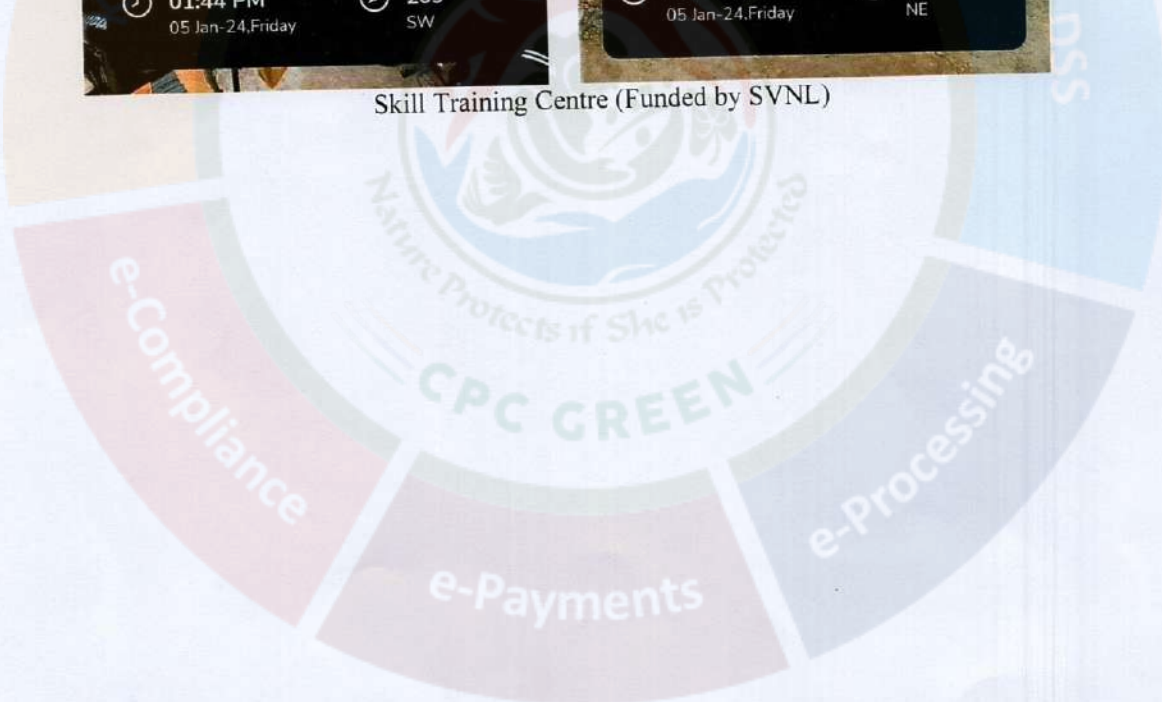
Hospital (Clinic) at Akhaupur Gola (400 m from plant boundary)

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Skill Training Centre (Funded by SVNL)



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## Annexure I

### Attendance

S. No.	Name & Address	Role	Attendance
1.	Dr. Sharad Singh Negi (I.F.S. Retd.)	Chairman	P
3.	Shri Inder Pal Singh Matharu, IFS (Retd.)	Member	P
3.	Shri Lalit Kapur	Member	P
4.	Dr. Umesh Jagannathrao Kahalekar	Member	P
5.	Dr. Santosh Kumar Hampannavar	Member	P
6.	Shri Savalge Chandrasekhar	Member	P
7.	Shri K. B. Biswas	Member	P
8.	Prof. Shyam Shanker Singh	Member	P
9.	Dr. Vinod Agrawal	Member	P
10.	Dr Nazimuddin, Scientist - F	Representative of Central Pollution Control Board	P
11.	Shri Mahi Pal Singh, Chief Engineer	Representative of Central Electricity Authority (CEA)	P
13.	Shri Harmeet Sahaney	Representative of Indian Meteorological Department (IMD)	A
13.	Prof. R M Bhattacharjee	Representative of IIT/ISM Dhanbad	A
14.	Shri Amit Vashishtha	Member Secretary	P
MOEF&CC			
1.	Sh. Mohit Saxsena	Scientist 'D'	P



**Standard EC Conditions for Thermal Power Sector:****A. Statutory compliance:**

1. Emission Standards for Thermal Power Plants as per Ministry's Notification S.O. 3305(E) dated 7.12.2015, G.S.R.593(E) dated 28.6.2018 and as amended from time to time shall be complied.
2. Part C of Schedule II of Municipal Solid Wastes Rules, 2016 dated 08.05.2016 as amended from time to time shall be complied for power plants based on Municipal Solid Waste.
3. MoEF&CC Notification G.S.R 02(E) dated 2.1.2014 as amended time to time regarding use of raw or blended or beneficiated/washed coal with ash content not exceeding 34% shall be complied with, as applicable.
4. MoEF&CC Notifications on Fly Ash Utilization S.O. 763(E) dated 15.09.1999, S.O. 979(E) dated 27.08.2003, S.O. 2804(E) dated 3.11.2009, S.O. 254(E) dated 25.01.2016 as amended from time to time shall be complied.
5. Thermal Power Plants other than the power plants located on coast and using sea water for cooling purposes, shall achieve specific water consumption of 2.5 m<sup>3</sup>/MWh and Zero effluent discharge.
6. The recommendation from Standing Committee of NBWL under the Wildlife (Protection) Act, 1972 should be obtained, if applicable.
7. No Objection Certificate from Ministry of Civil Aviation be obtained for installation of requisite chimney height and its siting criteria for height clearance.
8. Groundwater shall not be drawn during construction of the project. In case, groundwater is drawn during construction, necessary permission be obtained from CGWA.

**B. Ash content/ mode of transportation of coal:**

1. EC is given on the basis of assumption of \_\_\_\_% of ash content and \_\_\_\_km distance of transportation in rail/road/conveyor/any other mode. Any increase of %ash content by more than 1 percent, and/or any change in transportation mode or increase in the transport distance (except for rail) require application for modifications of EC conditions after conducting the 'incremental impact assessment' and proposal for mitigation measures.

**C. Air quality monitoring and Management:**

1. Flue Gas Desulphurisation System shall be installed based on Lime/Ammonia dosing to capture Sulphur in the flue gases to meet the SO<sub>2</sub> emissions standard of 100 mg/Nm<sup>3</sup>.

2. Selective Catalytic Reduction (SCR) system or the Selective Non-Catalytic Reduction (SNCR) system or Low NOX Burners with Over Fire Air (OFA) system shall be installed to achieve NO<sub>x</sub> emission standard of 100 mg/Nm<sup>3</sup>.
3. High efficiency Electrostatic Precipitators (ESPs) shall be installed in each unit to ensure that particulate matter (PM) emission to meet the stipulated standards of 30 mg/Nm<sup>3</sup>.
4. Stacks of prescribed height \_\_\_\_m shall be provided with continuous online monitoring instruments for SO<sub>x</sub>, NO<sub>x</sub> and Particulate Matter as per extant rules.
5. Exit velocity of flue gases shall not be less than 20-25 m/s. Mercury emissions from stack shall also be monitored periodically.
6. Continuous Ambient Air Quality monitoring system shall be set up to monitor common/criteria pollutants from the flue gases such as PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub> within the plant area at least at one location. The monitoring of other locations (at least three locations outside the plant area covering upwind and downwind directions at an angle of 120° each) shall be carried out manually.
7. Adequate dust extraction/suppression system shall be installed in coal handling, ash handling areas and material transfer points to control fugitive emissions.
8. Appropriate Air Pollution Control measures (DEs/DSs) be provided at all the dust generating sources including sufficient water sprinkling arrangements at various locations viz., roads, excavation sites, crusher plants, transfer points, loading and unloading areas, etc.

#### **D. Noise pollution and its control measures:**

1. The Ambient Noise levels shall meet the standards prescribed as per the Noise Pollution (Regulation and Control) Rules, 2000.
2. Persons exposed to high noise generating equipment shall use Personal Protective Equipment (PPE) like earplugs/ear muffs, etc.
3. Periodical medical examination on hearing loss shall be carried out for all the workers and maintain audiometric record and for treatment of any hearing loss including rotating to non-noisy/less noisy areas.

#### **E. Human Health Environment:**

1. Bi-annual Health check-up of all the workers is to be conducted. The study shall take into account of chronic exposure to noise which may lead to adverse effects like increase in heart rate and blood pressure, hypertension and peripheral vasoconstriction and thus increased peripheral vascular resistance. Similarly, the study shall also assess the health impacts due to air polluting agents.
2. Baseline health status within study area shall be assessed and report be prepared. Mitigation measures should be taken to address the endemic diseases.

3. Impact of operation of power plant on agricultural crops, large water bodies (as applicable) once in two years by engaging an institute of repute. The study shall also include impact due to heavy metals associated with emission from power plant.
4. Sewage Treatment Plant shall be provided for domestic wastewater.

#### **F. Water quality monitoring and Management:**

1. Induced/Natural draft closed cycle wet cooling system including cooling towers shall be set up with minimum Cycles of Concentration (COC) of 5.0 or above for power plants using fresh water to achieve specific water consumption of 2.5 m<sup>3</sup>/MW<sub>hr</sub>. (Or) Induced/Natural draft open cycle cooling system shall be set up with minimum Cycles of Concentration (COC) of 1.5 or above for power plants using sea water.
2. In case of the water withdrawal from river, a minimum flow 15% of the average flow of 120 consecutive leanest days should be maintained for environmental flow whichever is higher, to be released during the lean season after water withdrawal for proposed power plant.
3. Records pertaining to measurements of daily water withdrawal and river flows (obtained from Irrigation Department/Water Resources Department) immediately upstream and downstream of withdrawal site shall be maintained.
4. Rainwater harvesting in and around the plant area be taken up to reduce drawl of fresh water. If possible, recharge of groundwater to be undertaken to improve the ground water table in the area.
5. Regular (at least once in six months) monitoring of groundwater quality in and around the ash pond area including presence of heavy metals (Hg, Cr, As, Pb, etc.) shall be carried out as per CPCB guidelines. Surface water quality monitoring shall be undertaken for major surface water bodies as per the EMP. The data so obtained should be compared with the baseline data so as to ensure that the groundwater and surface water quality is not adversely impacted due to the project & its activities.
6. The treated effluents emanating from the different processes such as DM plant, boiler blow down, ash pond/dyke, sewage, etc. conforming to the prescribed standards shall be re-circulated and reused. Sludge/ rejects will be disposed in accordance with the Hazardous Waste Management Rules.
7. Hot water dispensed from the condenser should be adequately cooled to ensure the temperature of the released surface water is not more than 5 degrees Celsius above the temperature of the intake water.
8. Based on the commitment made by the Project Proponent, Sewage Treatment Plants within the radius of 50 km from proposed project, the treated sewage of .....KLD from STP ..... (name) shall be used as an alternative to the fresh water source to minimize the fresh water drawl from surface water bodies.

9. Wastewater generation of .....KLD from various sources (viz. cooling tower blowdown, boiler blow down, wastewater from ash handling, etc) shall be treated to meet the standards of pH: 6.5-8.5; Total Suspended Solids: 100 mg/l; Oil & Grease: 20 mg/l; Copper: 1 mg/l; Iron: 1 mg/l; Free Chlorine: 0.5; Zinc: 1.0 mg/l; Total Chromium: 0.2 mg/l; Phosphate: 5.0 mg/l;
10. Sewage generation of .....KLD will be treated by setting up Sewage Treatment plant to maintain the treated sewage characteristics of pH: 6.5-9.0; Bio-Chemical Oxygen Demand (BOD): 30 mg/l; Total Suspended Solids: 100 mg/l; Fecal Coliforms (Most Probable Number): <1000 per 100 ml.

#### **G. Risk Mitigation and Disaster Management:**

1. Adequate safety measures and environmental safeguards shall be provided in the plant area to control spontaneous fires in coal yard, especially during dry and humid season.
2. Storage facilities for auxiliary liquid fuel such as LDO and HFO/LSHS shall be made as per the extant rules in the plant area in accordance with the directives of Petroleum & Explosives Safety Organisation (PESO). Sulphur Content in the liquid fuel should not exceed 0.5%.
3. Ergonomic working conditions with First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.
4. Safety management plan based on Risk Assessment shall be prepared to limit the risk exposure to the workers within the plant boundary.
5. Regular mock drills for on-site emergency management plan and Integrated Emergency Response System shall be developed for all kind of possible disaster situations.

#### **H. Green belt and Biodiversity conservation:**

1. Green belt shall be developed in an area of 33% of the total project with indigenous native tree species in accordance with CPCB guidelines. The green belt shall inter-alia cover an entire periphery of the plant.
2. *In-situ/ex-situ* Conservation Plan for the conservation of flora and fauna should be prepared and implemented.
3. Suitable screens shall be placed across the intake channel to prevent entrainment of life forms including eggs, larvae, juvenile fish, etc., during extraction of seawater.

#### **I. Waste management:**

1. Solid waste management should be planned in accordance with extant Solid Waste Management Rules, 2016.



2. Toxicity Characteristic Leachate Procedure (TCLP) test shall be conducted for any substance, potential of leaching heavy metals into the surrounding areas as well as into the groundwater.
3. Ash pond shall be lined with impervious liner as per the soil conditions. Adequate dam/dyke safety measures shall also be implemented to protect the ash dyke from getting breached.
4. Fly ash shall be collected in dry form and ash generated shall be used in phased manner as per provisions of the Notification on Fly Ash Utilization issued by the Ministry and amendment thereto. By the end of 4<sup>th</sup> year, 100% fly ash utilization should be ensured. Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry. Mercury and other heavy metals (As, Hg, Cr, Pb, etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. Flyash utilization details shall be submitted to concerned Regional Office along with the six-monthly compliance reports and utilization data shall be published on company's website.
5. Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry/Medium Concentration Slurry/Lean Concentration Slurry method. Ash water recycling system shall be set up to recover supernatant water.
6. In case of waste-to-energy plant, major problems related with environment are fire smog in MSW dump site, foul smell and impacts to the surrounding populations. Therefore, the following measures are required to be taken up:
  - i) Water hydrant at all the dumpsites of MSW area to be provided so that the fire and smog could be controlled.
  - ii) Sprayer like microbial consortia may be provided for arresting the foul smell emanating from MSW area.

#### **J. Monitoring of compliance:**

1. Environmental Audit of the project be taken up by the third party for preparation of Environmental Statement as per Form-V & Conditions stipulated in the EC and report be submitted to the Ministry.
2. Resettlement & Rehabilitation Plan as per the extant rules of Govt. of India and respective State Govt. shall be followed, if applicable.
3. Energy Conservation Plan to be implemented as envisaged in the EIA / EMP report. Renewable Energy Purchase Obligation as set by MoP/State Government shall be met either by establishing renewable energy power plant (such as solar, wind, etc.) or by purchasing Renewable Energy Certificates.
4. Monitoring of Carbon Emissions from the existing power plant as well as for the proposed power project shall be carried out annually from a reputed institute and report be submitted to the Ministry's Regional Office.

5. Energy and Water Audit shall be conducted at least once in two years and recommendations arising out of the Report should be followed. A report in this regard shall be submitted to Ministry's Regional Office.
6. Environment Cell (EC) shall be constituted by taking members from different divisions, headed by a qualified person on the subject, who shall be reporting directly to the Head of the Project.
7. The project proponent shall (Post-EC Monitoring):
  - a. send a copy of environmental clearance letter to the heads of Local Bodies, Panchayat, Municipal bodies and relevant offices of the Government;
  - b. upload the clearance letter on the web site of the company as a part of information to the general public.
  - c. inform the public through advertisement within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment, Forest and Climate Change (MoEF&CC) at <http://parviesh.nic.in>.
  - d. upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same periodically;
  - e. monitor the criteria pollutants level namely; PM (PM<sub>10</sub> & PM<sub>2.5</sub> in case of ambient AAQ), SO<sub>2</sub>, NO<sub>x</sub> (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company;
  - f. submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB;
  - g. submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company;
  - h. inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project and the date of commencement of the land development work.

**K. Corporate Environmental Responsibility (CER) activities:**

1. CER activities will be carried out as per OM No. 22-65/2017-IA.II dated 01.05.2018 or as proposed by the PP in reference to Public Hearing or as earmarked in the EIA/EMP report along with the detailed scheduled of implementation with appropriate budgeting.

**L. Marine facilities:**

1. As the seawater intake systems are required for the plant fall in CRZ area, recommendations from State Coastal Zone Management Authority (SCZMA) as per CRZ Notification shall be implemented.
2. Marine intake and outfall pipelines shall be located as per the recommendations State Coastal Zone Management Authority (SCZMA).

**M. Sea Water Intake:**

1. Seawater intake system shall be so designed and constructed to ensure sufficient sweater in terms of quantity and quality.
2. The withdrawal of seawater shall be preferably through a pipeline with a riser equipped with a velocity cap arrangement and bar screen to arrest the impingement of large marine organisms.
3. In all tide conditions (particularly at spring low tides) the riser head must be flooded with the required submergence of seawater above its top.

**N. Effluent Release:**

1. At the effluent release point, maximum temperature of the discharge water shall not be more than 5°C and salinity shall not exceed 50 ppt with respect to that of the ambient seawater.
2. Use of antifouling agents like chlorine / hypochlorite, shall be carefully controlled. The chlorine concentration shall not exceed 0.2 ppm at the effluent release point.
3. The effluent when released at the selected location shall attain sufficient dilution so that near ambient water quality (particularly temperature and salinity) is attained within 500 m from the release location, at low tide.
4. The location of the diffuser shall be marked with a solar lighted buoy to avoid accidents.
5. The site selected based on mathematical modeling shall ensure absence of recirculation of the effluent plume in the seawater intake area under all tidal conditions.

6. The effluent shall be released through a properly designed multiport diffuser above the seabed to facilitate its efficient initial mixing with the receiving seawater.
7. Efficacy of the diffuser shall be ascertained at least once in 2 years through scientific studies and corrective actions such as cleaning of the diffuser from marine growth, removal of silt deposits, etc. shall be taken up, if warranted.
8. Continuous online monitoring system for Temperature and Salinity shall be installed to monitor the quality of effluent.

**O. Common to intake and effluent:**

1. The pipeline shall be buried below the seabed at a depth to ensure its stability under rough sea conditions particularly during cyclone / tsunami. The depth of burial will depend on the seafloor strata but normally the top of the pipeline shall be at least 1 m below the bed level. In the surf and intertidal zones, the pipeline shall be buried below the maximum scour level.
2. In case of open channel, the channel shall be constructed as per the recommendations of State Coastal Zone Management Authority (SCZMA).
3. If the substratum is rocky the pipeline may be anchored to the rock provided the geology of the area satisfactorily supports the structure which shall be ascertained through geo-technical investigations.
4. Exposed pipeline section and riser shall be protected by armour stone from waves, boats anchoring, fishing activities etc.
5. The location of the riser & diffuser shall be marked with a solar lighted buoy to avoid accidents from boats.
6. Marine / Sea water quality shall be monitored at effluent release location at the center. Parameters to be monitored shall be as follows:
  - a. *Physico-chemical*: Temperature, Salinity, pH and Dissolved Oxygen.
  - b. *Biological*: Primary Productivity, Phytoplankton (Chlorophyll a, Phaeophytin, Population, Species), Zooplankton (Biomass, Population, Species) and Benthos (Biomass, Population, Species).
7. In case of Coastal Power Plants, the Mangrove plantation shall be taken up in an area of .....ha, along the coast/ on the banks of ..... Estuary.



## APPROVAL OF THE CHAIRMAN

