

**MINUTES OF THE 33<sup>rd</sup> MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS HELD ON 25<sup>th</sup> September, 2019.**

The 33<sup>rd</sup> Meeting of the re-constituted EAC (Thermal Power) was held on 25<sup>th</sup> September, 2019 in the Ministry of Environment, Forest & Climate Change at Indus Meeting Hall, Ground Floor, Jal Wing, IPB, Jorbagh Road, New Delhi under the Chairmanship of Dr. Navin Chandra. The following members were present:

- |    |                        |   |                              |
|----|------------------------|---|------------------------------|
| 1. | Dr. Navin Chandra      | - | Chairman                     |
| 2. | Shri Suramya D. Vora   | - | Member                       |
| 3. | Dr. N.P. Shukla        | - | Member                       |
| 4. | Dr. Jai Krishna Pandey | - | Member                       |
| 5. | Shri N.S. Mondal       | - | Member (Rep. of CEA)         |
| 6. | Prof. S.K. Gupta       | - | Member (Rep. of IIT Dhanbad) |
| 7. | Shri N. Mohan Karnat   | - | Member                       |
| 8. | Dr. S. Kerketta        | - | Member Secretary             |

Dr. S. Lele, Dr. (Mrs.) Manjari Srivastava, Dr R.K. Giri (Rep. of IMD), Dr. S.K. Paliwal (Rep. of CPCB) and Shri G.P. Kundargi could not be present due to pre-occupation.

**Item No.33.0: CONFIRMATION OF THE MINUTES OF THE 32<sup>nd</sup> EAC MEETING.**

The Minutes of the 32<sup>nd</sup> EAC (Thermal Power) meeting held on 23.8.2019 were confirmed in presence of members present in the meeting.

**Item No. 33.0: CONSIDERATION OF PROJECTS**

**(33.1) 1080 MW (2x540 MW) Expansion Lignite based Thermal Power Plants at Village-Bhadresh, District-Barmer, Rajasthan by M/s JSW Energy (Barmer) Ltd.-reg. ToR.**

**(F.No. J-13011/58/2006-IA.II(T) & Proposal No.IA/RJ/THE/110058/2019)**

(33.1.1) Project Proponent has submitted the online application on 10.7.2019 for grant of Environmental Clearance for expansion project of 2x540 MW Supercritical Power Project. The proposal was earlier considered by the EAC in its meeting held on 25.7.2019 and the committee has sought the following additional information:

- i. Another application for grant of EC at the same location has been proposed for which final EIA report has been submitted to the Ministry. Details and status of the said proposal be submitted. If it is proposed to withdraw the application, a letter is to be submitted that only one project will be set up either the earlier one or proposed one.
- ii. Details of the Board of Directors of the company shall be submitted.
- iii. Project Feasibility Report is to be uploaded online at PARIVESH. A copy of the agreement for water drawl of 80 cusecs from Indira Gandhi Nahar Pariyojana is to be submitted.
- iv. The details of area, volume availability, co-ordinates of the existing ash pond. Whether there is any requirement of additional ash pond.
- v. The details of emissions from the flue gases of the operating power plant. The details and status of compliance of the new emission norms dated 07.12.2015.

- vi. Justification to establish 8x135 MW as against the approved capacity of 8x125 MW in the Environmental Clearance dated 20.07.2007.
- vii. The dates of commissioning (COD) of operating units viz. 8x135 MW.
- viii. Location and distance of source of Lignite from project.
- ix. Whether setting up of additional infrastructure such as conveyor belt is required from mines for transporting Lignite and pipelines from water intake point for transporting water. Details of land acquisition in this regard, if any.
- x. Availability of land for proposed project after compliance of 33% greenbelt of the total project area.
- xi. A map showing water pipelines from intake point/canal, belt conveyors from mines, ash pond, greenbelt, existing plant and proposed plant shall be submitted along with co-ordinates and dimensions, shall be submitted.
- xii. Details regarding whether zero liquid discharge is followed or any effluent from power plant is discharged into nearby water body.

(33.1.2) Project Proponent vide their letter dated 19.8.2019 submitted the information. Accordingly, the proposal has been re-considered by the EAC in the present meeting. Project Proponent along with EIA consultants M/s EQMS Pvt. Ltd. made the presentation and *inter-alia*, submitted the following information:

- i. Withdrawal letter for the previously proposed application for expansion by adding 660 MW project.
- ii. Details of the Board of Directors of the company have been submitted.
- iii. Project Feasibility Report has been uploaded on PARIVESH.
- iv. Copy of Agreement with IGNP for 80 cusecs water withdrawal has been submitted. The agreement has been made between Govt. of Rajasthan and M/s Raj West Power Limited for allowing 80 cusecs of water from Indira Gandhi Nahar Canal Project on 19.2.2007.
- v. The proposed project will establish the Air cooled condenser system which will use minimum water and the existing permission to draw 80 cusecs of water would be sufficient for the proposed project as well.
- vi. The details of area, volume availability, co-ordinates of the existing ash pond as mentioned below:

<b>Co-ordinates (Ash Pond)</b>		
POINT	Longitude	Latitude
A	71°19'44.69"E	25°53'24.69"N
B	71°20'2.56"E	25°53'25.67"N
C	71°20'4.94"E	25°53'21.34"N
D	71°20'0.88"E	25°53'11.25"N
E	71°19'45.56"E	25°53'10.51"N
Area of Ash Pond	44 acres	
Depth of Ash Pond	12 m	
Volume of Ash Pond	About 2 million m <sup>3</sup>	

- vii. No additional ash pond is required for proposed expansion project.
- viii. The stack analysis results of the existing power plant during August, 2019 are provided below:

Parameter (mg/Nm <sup>3</sup> )	Unit No.							
	1	2	3	4	5	6	7	8
PM	45.7	<b>54.6</b>	49.8	47.2	<b>55.5</b>	<b>52.2</b>	<b>50.7</b>	<b>53.2</b>
SO <sub>x</sub>	452.4	393.4	495.6	443.6	453.6	420.3	373.1	383.4
NO <sub>x</sub>	143.5	127.0	153.9	154.1	166.1	165.2	134.1	150.9
Hg	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

- ix. The emissions of SO<sub>2</sub> and NO<sub>x</sub> are within the specified limits of 600 mg/Nm<sup>3</sup> and 300 mg/Nm<sup>3</sup>, respectively. For meeting PM emissions below 50 mg/Nm<sup>3</sup>, CPCB has given extension up to December, 2022 vide CPCB order dated 11.12.2017.
- x. Specific water consumption of 3.5 m<sup>3</sup>/MW has been achieved as the cooling system is based on Closed Circuit Cooling Tower System which is operating at Higher COC.
- xi. EC for existing 1080 MW power plant was issued by MOEF for 8x125 MW dated 20.7.2007 and amendment for 8x135 MW was issued dated 19.11.2009.
- xii. Initially it was planned for establishing 125 MW unit each, but that time 135 MW unit were available in the market. The original plan has been modified to establish 8x135 MW project. The additional capacity of 80 MW and received the amended EC for 8x135 MW project on 19.11.2009.
- xiii. JSW Energy (BARMER) Limited (formerly M/s Raj West Power Limited) plant is 1080 MW Lignite based thermal power plant comprised of 8 units of 135 MW each and each of the unit has been installed and commissioned in a phased manner as indicated below:

Unit No.	Installed Capacity (MW)	Date of Commissioning
1	135	26.11.2009
2	135	04.10.2010
3	135	07.11.2011
4	135	04.12.2011
5	135	04.02.2013
6	135	03.03.2013
7	135	16.03.2013
8	135	28.02.2013

- xiv. Coal for the existing power plant is being supplied from Kapurdi (4 km closed conveyor, 1200 TPH) and Jalipa Mine block (2.5 km closed conveyor, 1200 TPH) through conveyor belt. Existing Conveyor facility is sufficient to meet the coal transportation from Mine for Proposed expansion project also.
- xv. The present infrastructure of water pipeline is sufficient to meet the requirement of proposed expansion plant from IGNP-Mohangarh. No additional pipeline will be laid.

- xvi. Proposed plant will be established in existing plant premises and no additional land is acquired.
- xvii. The total plant area is 1186 acres.

Land use	Area
Existing plant area	525 acres
Ash pond area	44 acres
Plantation area	394 acres
Proposed 2x540 Project expansion project area	223 acres
Total	1,186 acres

- xviii. Maps showing Water pipeline from IGNP take off point to Plant area, Conveyor belt area, total Plant area, Plantation Area, Ash pond area and proposed project area have been submitted.
- xix. The existing plant is following the Zero liquid discharge scheme and not letting out effluent outside the boundary and complying the norms stipulated by MOEF&CC, CPCB, and RSPCB.

(33.1.3) Committee noted that the timelines given by CPCB for meeting PM emissions as per the latest emission norms are December, 2021 (Units-7 & 8), April, 2022 (Units-5 & 6), August, 2022 (Units-3 & 4), December, 2022 (Units-1 & 2), respectively. Further, there is no additional ash pond, intake structures (coal and water) are not required for proposed power project. Committee noted that the agreement for water withdrawal has been made in 2007 in the name M/s Raj West Power Company Ltd. and new agreement is to be made after ascertaining the availability of water.

**(33.1.4) Committee after detailed deliberations, recommended for grant of TOR with the following additional ToR along with Standard ToR:**

- i. The pollution load of the existing units along with the proposed units and the mines located within 10 km radius shall be estimated. The plume dispersion modeling is to be carried out by taking all the existing stacks (pollution load), proposed stack (proposed emissions) and surrounding mines to predict the incremental concentrations. The predictions shall be made for various scenarios such as Weather Classes-A (Highly Unstable), D (Neutral), F (Highly Stable).
- ii. The water balance diagram for air-cooled condenser system shall be prepared in the EIA report.
- iii. Action plan for meeting new emission norms and specific water consumption for existing power plant shall be submitted.
- iv. Certified compliance report from the concerned Regional Office for existing ECs is to be submitted.

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**(33.2) Disposal of fly ash generated from Talcher Super Thermal Power Station (Stage-I:2x500 MW & Stage-II: 4x500 MW) into abandoned mine voids of Jagannath OPC of Mahanadi Coalfields Limited in Talcher, Dist. Angul, Odisha by M/s NTPC Limited- reg. amendment in EC. (F.No.J-13011/14/94-IA.II(T)pt & Proposal no. IA/OR/THE/116910/2019)**

(32.2.1) Project Proponent submitted online application on 05.09.2019 for permission to create new ash dyke in an area of 60.24 ha at village Masunihita located between existing ash ponds as existing ash pond of 750 acres will be exhausted within 2 years (by March, 2021). The Environmental Clearance for Stage-I (2x500 MW) was accorded by the Ministry vide OM No. 25/5/84-En.2/IA dated 17.02.1988 and Talcher STPP Stage-II (4x500 MW) was accorded vide letter No. J-13011/14/94-IA.II (T) dated 17.05.1996.

(32.2.2) Project Proponent has made the presentation *inter-alia*, submitted the following information:

- i. The current proposal is for permission for construction of new ash dyke for Talcher STPP, Stage-I on additional 60.24 ha of land (44.17 ha private land and 16.07 ha of NTPC existing land) at village Masunihita, located between the existing ash ponds.
- ii. A temporary permission for disposal of flyash in abandoned mine voids (Quarry No.8) of Jagannath mine has been accorded by the Ministry on 20.9.2018 for a period of five years. However, the disposal in mine voids could not be started due to issues related laying of pipeline.
- iii. Talcher STPP is located near Talcher Coalfields with a cluster of thermal power projects generating huge ash quantity and the utilisation potential in the area is low. In spite of best efforts made for utilisation, the ash ponds are still required for disposal of ash for uninterrupted operation of thermal power plant.
- iv. Stage-I dyke was designed for 7<sup>th</sup> raising on its starter which has been completed in February, 2017. Now its life span is being extended up to March, 2021 by means of buttressing of the lagoons having raised by upstream method.
- v. Due constraints average ash utilization is about 41% during last 5 years, viz. 39.6% ash used for dyke construction and 1.5% ash in brick manufacturing/Asbestos/ Cement industries.

(33.2.3) Committee noted that a permission was already issued to the power plant for disposal of ash in mine voids of Jagannath mine. However, the PP claimed that pipeline could not be laid due various reasons such as delay in forest clearance, acquisition of land, etc. Further, the ash utilisation has been 41%. Project Proponent has to show the avenues available in the 50 km radius for utilisation. Further, the status and milestones for laying pipeline and starting the ash disposal in the Jagannath mine voids. The Ministry has recently in August, 2019 has enabled all power plants to directly start disposing ash in the mine voids with monitoring of certain environmental parameters. It has been discouraged to create a new land for ash disposal unless it is really warranted.

(33.2.4) **Committee after deliberations, recommended for acquisition additional land (60.24 ha) for disposal of fly ash with the** following additional information:

- i. The details of existing ash ponds such as area, total volume, quantity of ash filled till date, dyke height, volume availability and plan for increasing the dyke height, if any.
- ii. Details of surrounding villages/habitations, groundwater quality in the villages around existing ash dykes.
- iii. The schedule/milestones for laying pipelines to Jagannath mine voids for discharging ash.

- iv. The ash utilisation avenues within 50 km radius of the power plant. Details of other abandoned mines available within 50 km radius and possibility of disposing ash into the mines.
- v. Copy of Hydro-geological study conducted by IIT, Roorkee.
- vi. The land use of proposed ash pond as per the revenue records.

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**(33.3) 2x800 MW (Stage-III), Singrauli Super Thermal Power Project Tehsil Dudhi, Village Shaktinagar at District Sonbhadra, Uttar Pradesh by M/s NTPC Limited. - reg. Environment Clearance.**

**(F.No.J-13012/09/2016-IA. I (T) and Online No. IA/UP/THE/117100/2016)**

(33.3.1) Project Proponent has submitted the online application on 12.09.2019 for grant of Environmental Clearance. The ToR for undertaking Environmental Impact Assessment (EIA) studies for establishing 2x660 MW expansion project has been issued by the Ministry on 6.3.2017. An amendment to the ToR has been issued for changing the configuration from 2x660 MW to 2x800 MW on 10.12.2018.

(33.3.2) Project Proponent along with QCI-NABET consultants M/s Vimta Labs Ltd. have made the presentation inter-alia submitted the following information:

- i. NTPC had established the coal based Singrauli Super Thermal Power Station (SSTPS) of total 2000 MW capacity under Stage-I (5x200 MW) and Stage-II (2x500 MW), which are operational at Shakti Nagar, Sonbhadra district of Uttar Pradesh state.
- ii. NTPC now proposes to augment the capacity by addition of 1600 MW (2x800 MW) under Stage-III using coal. Stage-I (5x200 MW) will be decommissioned after commissioning of the proposed project (Stage-III). The total capacity of the project after expansion will be 2,600 MW.
- iii. The Singrauli STPS is located on the northern bank of Rihand reservoir near Shakti Nagar, tehsil Dudhi in district Sonbhadra of Uttar Pradesh close to the neighbouring state boundary of Madhya Pradesh. The Singrauli STPS is approachable from Renukoot-Singrauli road through an approach road already constructed during Stage-I of this Station.
- iv. There are no Wildlife Sanctuaries/ National Parks or any ecological sensitive area of national importance, including Reserve Forests exist within 10 km radius from Singrauli STPS. However, Dudichua and Mehrauli protected forests are located at 4.1 km and 8.8 km respectively. No archaeological monument of national importance & defense installations exist within 10 km radius of the Singrauli STPS.
- v. The main plant of Stage-III (2x800 MW) shall be accommodated within existing main plant area. No additional land is envisaged for the project.
- vi. Total land available in the plant area is 4,491 acres which is under industrial land use category. Out of this land, about 562 acres will be required for Proposed Project (Stage-III: 2x800 MW). The break-up of facility-wise land details are as below:

<b>Land Usage</b>	<b>Type of Land</b>	<b>Approx. Land Requirement (acres)</b>
Main Plant + Switch Yard Area	Industrial (existing land)	106

Air Cooled Condenser	Industrial (existing land)	38
DM and PT Plant Area	Industrial (existing land)	11
Coal Handling Plant	Industrial (existing land)	42
Greenbelt/Plantation	Industrial (existing land)	65
Others	Industrial (existing land)	300
<b>Total</b>		<b>562 acres</b>

- vii. The project is based on super-critical technology. The design steam parameters are as below:

<b>Sl. No.</b>	<b>Particulars</b>	<b>Details</b>
1.	Main steam flow at superheater outlet	2660 TPH
2.	MS Pressure at superheater outlet	281kg/cm <sup>2</sup> ( abs)
3.	MS Temperature at SH outlet	603 °C
4.	Steam flow to Reheater	2090 TPH
5.	Steam temperature at reheater outlet	603 °C
6.	Feed water temperature at economizer inlet	305.8 °C

- viii. The coal requirement for the proposed expansion of Singrauli STPP Stage-III (2x800 MW) power plant shall be about 8.4 MTPA at 90% PLF.
- ix. Standing Linkage Committee (Long-Term) for power sector, Ministry of Coal, Govt. of India has recommended the long term coal linkage for 6.9 MTPA to proposed Singrauli STPP Stage-III at its meeting held on 10.04.2018. Ministry of Coal has issued Minutes of Meeting (MOM) dated 15.05.2018.
- x. NTPC vide letter dated 13.09.2018 has requested to Ministry of Power to recommend the enhanced quantity of coal due to change in capacity (from 2x660 MW to 2x800 MW). SLC (LT) has recommended the enhanced quantity of coal linkage due to increase in capacity (2x660 MW to 2x800 MW) in its meeting held on 21.12.2018.
- xi. The coal expected quality for the proposed plant is as follows:

<b>Sl. No.</b>	<b>Particulars</b>	<b>Value</b>
1.	Total Moisture	20 %
2.	Sulphur content (Max)	0.5 %
3.	Ash content (Avg.)	34%
4.	GCV, Kcal/Kg	3300-3700

- xii. The daily coal requirement for 2x800 MW unit shall be about 26,000 tonnes based on gross calorific value of 3500 Kcal/ kg, 100% plant load factor and 2247.97 Kcal/ Kwh unit heat rate.
- xiii. Transportation of coal from coal mines to Singrauli Stage-III project is proposed by MGR system and Indian Railways. Suitable augmentation of MGR system and unloading systems shall be required. Presently, coal to Singrauli STPS is being sourced from Jayant and Dudhichua coal mines of Northern Coalfields Ltd (NCL) by MGR system/ Indian Railways.
- xiv. The envisaged mode of coal transportation from the coal mines to the power plant is by MGR system. The rakes shall be unloaded at the track hopper. The length of track hopper shall be 220 m. For daily coal requirement of 26000 Tonnes, 13 rakes of 33 wagons each is required. 6 locomotives and 145 wagons are required for the same.

- xv. The coal handling plant shall be of 2,400 MTPH rated capacity with parallel double stream (one working and one standby) belt conveyors along with facilities for receiving, unloading, crushing and conveying the crushed coal to boiler bunkers and stacking/reclaiming the coal to/from crushed coal stockyards.
- xvi. Coal stockyards shall have crushed coal storage equivalent to 10 days coal consumption at 100% PLF for all units of Stage-II & Stage-III. Dust suppression and service water system shall be provided throughout the coal handling plant.
- xvii. The requirement of limestone will be 20 TPH for FGD system. Limestone received by trucks shall be unloaded using truck tippers and box feeders/ bulk material receiving unit/ truck unloading system/ surface feeder. Provision shall be kept for unloading of 2 trucks continuously. Double stream conveyors are considered for both limestone and gypsum handling system. The conveying capacity for limestone shall be 150 TPH and for gypsum handling shall be 150 TPH.
- xviii. Singrauli STPS, Stage-I and II are operating with once through cooling system with water drawn from Rihand reservoir. A closed cycle cooling system using air cooled condenser as cooling system is proposed for Stage-III of the project.
- xix. About 16 cusecs of consumptive water required for Stage-III (2x800 MW) of the project is envisaged to be tapped and reduce the consumption due to air cooled condensers. No make-up water pump is required as water will be drawn from the hot water discharge channel of Stage-II through raw water pumps. Raw water will be drawn to supply to PT Plant & Ash Handling Plant. Six (6) numbers of raw water pumps, i.e. three (3) for PT plant and three (3) for ash plant will be provided.
- xx. Normal make up water requirement for the proposed expansion project would be about 1620 m<sup>3</sup>/h (38,880 m<sup>3</sup>/day) with ash water re-circulation system in operation. However, whenever ash water system needs to be operated in once through mode, water drawl shall be of the order of 2745 m<sup>3</sup>/h (65,880 m<sup>3</sup>/day).
- xxi. The requirement of water for the proposed project is given as below:

<b>Sl. No.</b>	<b>Description</b>	<b>Water Requirement (m<sup>3</sup>/h)</b>
1.	Boiler make-up	100
2.	HVAC make-up	90
3.	Service water	150
4.	FGD	425
5.	Auxiliary CT Make up	155
6.	Bottom ash dyke evaporation loss	175
7.	HCSD Dyke evaporation loss	425
8.	CHP	100
	<b>Total</b>	<b>1,620</b>

- xxii. The existing manpower of the plant for Stage-I & Stage-II is about 700. The total manpower from various agencies during construction of Stage-III would be about 2000 and during operation period is estimated to be about 260.
- xxiii. Zero Liquid Discharge (ZLD) system will be adopted and no effluent will be discharged from proposed project. Blow down from air cooled condenser of cooling towers will be the main sources of the wastewater. Besides this, DM



plant waste, domestic waste from canteen and toilets will be the other wastes generated. The treated wastewater from sewage & effluent treatment plant will be used in greenbelt development. The complete power plant Stage-III shall be designed as a Zero Liquid Discharge (ZLD) Plant. The wastewater estimated from the proposed project is as below:

<b>Wastewater Stream</b>	<b>Effluent Generated (m<sup>3</sup>/h)</b>	<b>Effluent Discharged from Plant (m<sup>3</sup>/h)</b>	<b>Treatment/Recycle/ Reuse envisaged</b>
Clarifier sludge	35	Nil	Treatment in tube settler and reused into ash slurry sump
Tube settler sludge	5	Nil	Disposal to ash water tank
DM filter backwash	10	Nil	Recycle to DM clarifier inlet
Boiler blowdown	100	Nil	Recycled to ACW makeup
DM neutralization pit	20	Nil	Recycled to Ash slurry sump
Domestic sewage	15	Nil	Treatment in Sewage Treatment Plant (STP) & reuse in Plantation & horticulture

- xxiv. It is proposed to install high efficiency electrostatic precipitator having an efficiency that limits the outlet emission to 30 mg/Nm<sup>3</sup> while the boiler is operating at its MCR, firing worst coal having maximum ash content.
- xxv. Wet limestone based Flue Gas Desulphurisation (FGD) system shall be installed at the tail end of the steam generator downstream of the ESP to capture SO<sub>2</sub>. The FGD shall have a scrubber as the main reaction vessel in which SO<sub>2</sub> gas shall be captured in limestone slurry to produce gypsum. The FGD shall be provided with lime stone preparation system which shall grind raw lime stone to desire fineness. The scrubber shall be provided with bypass system.
- xxvi. Ash content of indigenous coal would be less than 34% and about 2.85 MTPA ash will be generated annually.
- xxvii. Gypsum generation is estimated as 35 TPH. Gypsum produced by the FGD system is envisaged to be removed by conveyers to a storage shed (7 days storage capacity). Gypsum stored in storage area will be further disposed in environmentally safe manner to end users (like Cement Industries) through railway/road.
- xxviii. The primary environmental data has been collected during 15<sup>th</sup> May, 2017 to 14<sup>th</sup> May, 2018.
- xxix. During winter, predominant winds from W direction were observed for 13.2% of the total time, with wind speeds in the range of 0.5-19 kmph. During pre-monsoon, predominant winds from W direction were observed for 25.4% of the total time, with wind speed in the range of 1-19 kmph.
- xxx. The minimum and maximum concentrations for PM<sub>10</sub> were recorded as 44.5 µg/m<sup>3</sup> (monsoon) and 82.7 µg/m<sup>3</sup> (winter), respectively. The minimum and maximum concentrations for PM<sub>2.5</sub> were recorded as 16.9 µg/m<sup>3</sup> (monsoon)

and 55.6  $\mu\text{g}/\text{m}^3$  (winter), respectively. The minimum and maximum  $\text{SO}_2$  concentrations were recorded as 8.5  $\mu\text{g}/\text{m}^3$  at Ghorauli (AAQ9, during monsoon) and 43.8  $\mu\text{g}/\text{m}^3$  at Matwal (AAQ8, during winter). The minimum and maximum  $\text{NO}_2$  concentrations were recorded as 10.3  $\mu\text{g}/\text{m}^3$  at Ghorauli (AAQ9, during monsoon) and 51.9  $\mu\text{g}/\text{m}^3$  at Matwal (AAQ8, during winter), respectively. All the ambient air quality parameters are within the national standards.

- xxxi. The day time noise levels at all the locations ranged in between 44.65 dBA to 60.25 dBA. The night time noise levels ranged in between 41.05 dBA to 56.65 dBA. In all monitoring locations, ambient noise levels are observed to be below the CPCB prescribed ambient noise levels.
- xxxii. Ten surface water, fifteen ground water sources covering 10 km radial distance were examined for physico-chemical, heavy metals and bacteriological parameters in order to assess the effect of industrial and other activities on surface and ground water.
- xxxiii. The analysis of surface water indicate the pH values in the range of 6.6 to 8.31, TDS in the range of 79-612 mg/l, DO in the range of 4.8-6.2 mg/l.
- xxxiv. The water quality results indicate that the Baliya nallah is moderately polluted since the concentrations of BOD and COD are exceeding the permissible standards. Further, Coliforms are also exceeding the standard of drinking water.
- xxxv. Ground water analysis that the pH in in the range of 6.16 to 8.47, Total hardness is in the range of 66-679.8 mg/l, Chlorides in the range of 14.2-348.2 mg/l, Sulphates in the range of 2.8-128.1 mg/l, TDS in the range of 132-1,240 mg/l.
- xxxvi. Soil in the study area is found to be slightly to moderately alkaline. Soil fertility levels are less in Nitrogen and less to sufficient in Phosphorous and Potassium.
- xxxvii. There are two protected forest blocks within 10 km radius which are listed as below:

Sl .No	Name of the Forest Block	Distance (km)	Direction
1	Dudhichua PF	4.1	N
2	Mehrauli PF	8.8	NW

- xxxviii. Avifauna is represented by 51 bird species of the Indian Wildlife (Protection) Act, 1972.
- xxxix. Mammalian fauna within 10 km of the buffer zone of study area are represented by Jackals, Nilgai, Black Napped Indian Hare, Hanuman Langur, squirrels, Wild boar's, common mongoose, which are confined in the following schedules such as Schedule-II, Schedule-III, schedule-IV, and Schedule-V of the Indian Wildlife (Protection) Act, 1972, comprising of 11 species.
- xl. Python molurus i.e Python is found in the study area, which is listed in the Schedule-I of the Indian Wildlife (Protection) Act, 1972. The Rihand Reservoir has presence of Marsh crocodiles (*Crocodylus palustris*) which are listed in the Schedule-I of the Indian Wildlife (Protection) Act, 1972 in the buffer zone of the study area.
- xli. The reservoir area (Gobind Ballabh Pant Sagar/Rihand Reservoir) contains total of 32% of the 10 km study area.

- xlii. The incremental concentrations of the proposed project have been predicted and super-imposed on the maximum baseline data to arrive at resultant concentrations during operational phase of the proposed project. The resultant concentrations are given as below:

Pollutant	Maximum Concentrations ( $\mu\text{g}/\text{m}^3$ )		Resultant ( $\mu\text{g}/\text{m}^3$ )
	Maximum baseline in study area	Incremental	
			Single stack height of 275 m with Bi-flue
<b>Post-Monsoon 2017</b>			
PM <sub>10</sub>	74.3	1.2	75.5
SO <sub>2</sub>	26.2	4.1	30.3
NO <sub>2</sub>	28.5	4.1	32.6
<b>Winter 2017</b>			
PM <sub>10</sub>	82.7	1.5	84.2
SO <sub>2</sub>	43.8	4.9	48.7
NO <sub>2</sub>	51.9	4.9	56.8
<b>Pre-Monsoon 2018</b>			
PM <sub>10</sub>	75.64	1.9	77.54
SO <sub>2</sub>	33.68	4.6	38.28
NO <sub>2</sub>	41.18	4.6	45.78

- xliii. The public hearing for the proposed project was conducted on 9.7.2019 under the Chairmanship of the Collector & District Magistrate, Uttar Pradesh at Ambedkar Bhavan, Shakti Nagar, Sonbhadra district of Uttar Pradesh state.
- xliv. Risk assessment for Maximum credible failure scenarios in the LDO storage tanks in Stage-II and Stage-III of NTPC Singrauli STPP have been estimated. In the dykes for LDO storage in Stage-II and Stage-III, fire break walls are to be provided to limit spread of LDO and prevent full dyke fire situation in the event of small spillage. Dyke area provided for Stage-II appears to be much larger than the area specified by OISD / PESO norms. It may be considered to reduce the dyke area for Stage-II LDO tanks.
- xlv. About 500 numbers of the residents, representatives of NGO'S, Sarpanch, Gram panchayat members, media representatives, local leaders etc. of the nearby villages were present for the said public hearing. The issues raised in the public hearing have been addressed and necessary commitments have been given by the Company.
- xlvi. Singrauli STPP is currently producing about 37- 40 lakh tonne ash per annum. Present ash utilization is low mainly because of huge availability of ash in the vicinity due to number of large capacity coal based plants.
- xlvii. It estimated that about 2.85 MTPA of ash shall be utilized in cement, concrete, brick making and agriculture field on sustainable basis. Full utilization of ash shall, be achieved once abandoned mine is given to NTPC and or filling of ash along with over burden on operating coal mines.
- xlviii. The expansion of Singrauli STPP Stage-III (2x800 MW) involves demolition of various facilities of existing plant, Hostel Nos. 1, 2 and 3, common facilities in existing township/ infrastructures. The details about various

facilities/infrastructures to be demolished/dismantled will be enumerated after detail engineering of proposed project.

- xlix. Till date Singrauli STPP has planted 16 lakhs sapling as greenbelt which covers an area of 1,192 acres.
1. The capital cost of the proposed Singrauli Stage-III (2x800 MW) is Rs. 11,363 Crores. An EMP cost of Rs. 2,459.58 Crores towards the environmental measures for electrostatic precipitator, chimneys, air cooled condensers, ash handling including AWRS, dust extraction and suppression system, DM plant waste treatment systems, sewerage collection treatment & disposal, systems, environment lab equipment, greenbelt/afforestation & landscaping, FGD & SCR, etc. The break-up of EMP cost is as below:

Sl. No	Item Description*	Cost (Rs. in Crores)
1	Electrostatic Precipitator	253.01
2	Chimney	81.62
3	Air Cooled Condensers including Civil Works	618.96
4	Ash Handling including Ash water Recirculation	299.24
5	Ash Disposal Civil Work	296.18
6	Dust Extraction & Suppression System	8.00
7	DM Plant Waste Treatment System	9.00
8	Sewerage collection, Treatment & Disposal	8.00
9	Environmental Lab. & Monitoring Equipment	3.00
10	Green Belt, Afforestation & Landscaping and CER	9.00
11	FGD and SCR	873.57
<b>Total (Rs. in crores)</b>		<b>2459.58</b>

- ii. Further, an amount of Rs.16.00 Crores has been kept under CER for various activities like, Deepening/ renovation of ponds, vocational skill to women of villages-Tailoring/ papad making/ pickle making/ beautician training, technical skill development programs, approach road/ internal road, culverts, drainage system, guarding wall, infrastructure support in street lighting, solar street lights at common place etc. CSR-CD budget of Rs. 5.15 crores approx. for 2019-20 along with planned CSR-CD activities by Singrauli Super Thermal Power plant is provided.
- iii. The existing manpower of the plant for Stage-I & Stage-II is about 700. The total manpower required for proposed project (Stage-III) would be about 2,000 during construction and 260 during operations.

(33.3.3) Committee noted that Pollution load of existing stacks is to be considered while estimating the pollution load of proposed project to understand the total pollution load from the plant premises, further the dispersion modelling should also take the existing stack emission along with the proposed stack emissions. Accordingly, the overall pollution load can be assessed. Further, Singrauli is Critically Polluted area and Hon'ble NGT vide Order dated 10.07.2019 in OA No.1038/2018 directed that no further industrial activities or expansion be allowed with regard to 'red' and 'orange' category units till the said areas are brought within the prescribed parameters or till carrying capacity of area is assessed and new units or expansion is found viable having regard to the carrying capacity of the area and environmental norms. Accordingly, if this project needs to be considered, the carrying capacity of the singrauli critically polluted area is to be conducted. Committee further noted that the ash pond is Madhya Pradesh and Power Project is in Uttar Pradesh. The villages and stakeholders in the Madhya Pradesh within 10 km radius of the project shall also be

involved. A condition in the ToR was also stipulated to ensure the participation from Madhya Pradesh. The details in this regard needs to be furnished. There are several public representations received against the project and problems pertaining to ash pond. Project Proponent needs to submit the replies to the representation. Member Secretary may provide the copies of these representations. Rihand Reservoir has Schedule-I species (Crocodiles). A wildlife conservation plan needs to be submitted. The certified EC compliance report on the existing ECs and permissions for additional ash ponds on emissions, ambient air quality, water consumption, wastewater discharge, solidwaste management, ash generation/utilisation/disposal, groundwater monitoring around the ash pond, existing pollution control equipment, etc. needs to be submitted. Status of installing the new pollution control equipment to meet revised emission norms needs to be submitted. The water balance diagram showing air cooled condenser along with the quantities of existing units needs to be submitted. The existing units are running based on once through cooling systems. The status and progress of installing cooling towers to bring down the specific water consumption of 3.5 m<sup>3</sup>/MWh is to be provided. Socio-economic impact assessment study has been conducted by an NGO and the recommendations are generic in nature. Public Hearing concerns are mainly regarding compensation, jobs and establishing super speciality hospital. A firm commitment in this regard may be submitted. It has been noted that ash utilisation is 30-35% for the operating power plants.

(33.3.4) Committee after deliberations, **deferred the proposal for want of the following information:**

- i. Pollution load of existing power plant from all stacks in terms of Tons of PM, SO<sub>2</sub> and NO<sub>x</sub> emitted in a day. The total pollution load of existing and proposed power project and estimation of ground level concentrations considering emissions from all stacks including the proposed project.
- ii. Further, the estimation of pollution load and prediction of ground level concentrations shall be carried out considering only Stage-II and Stage-III projects as Stage-I (5x200 MW) planned to be after construction of proposed project.
- iii. The water balance diagram for proposed project (considering the air cooled condenser system) aswell as existing units.
- iv. Status of implementation of pollution control equipment to meet the revised emission norms such as FGD, De-NO<sub>x</sub>/SCR/SNCR/Low-NO<sub>x</sub> burners for operating power plants. Status of achieving specific water consumption of 3.5 m<sup>3</sup>/MWh and installing cooling towers inline with the Ministry's notifications dated 7.12.2015 and 28.6.2018. Whether there is any extension received from CPCB. If yes, a copy is to be submitted.
- v. Wildlife Conservation Plan is to be submitted preferably to be vetted by the Chief Wildlife Warden in the State Wildlife Department as the Schedule-I species are present in the Rihand Reservoir and within 10 km radius of the project.
- vi. Details of Ash generation, utilisation and disposal for last 5 years is to be provided. The area of ash ponds, total volume of ash pond with dyke height, quantity filled till date, available volume, co-ordinates of each ash pond, status of liner, status of disposal system (Lean slurry, medium or high slurry concentrations), AWRS, etc.
- vii. Details of whether villages in the Madhya Pradesh within 10 km radius of the project have been involved in the Public Hearing and whether Madhya Pradesh Pollution Control Board has also been involved in the Public Hearing. A clarification from UPPCB and MPPCB is to be obtained.

- viii. Reply along with action plan to the public representations received by the Ministry.
- ix. Certified EC compliance report by the Regional Office for operating power plants including permission issued for additional ash ponds. As the EC was issued before EIA Notification, 1994, the report should cover emissions from the stack, coal and ash handling units, coal transportation, fugitive emissions at transfer points and stack yard, ambient air quality, water consumption, wastewater discharge, solidwaste management, ash generation/utilisation/disposal, groundwater monitoring around the ash pond, existing pollution control equipment, status of online connectivity of stacks with CPCB, 33% greenbelt out of total plant area, CSR activities, Consent conditions, etc.
- x. Water quality of Baliya nallah is polluted due to high BOD and COD. Further, Coliforms in all surface water samples in the study area are exceeding the standards. The detailed cause/inference for exceeding the threshold limits is to be ascertained. The comparative analysis of heavy metals in the ground water vis-à-vis drinking water standards is to be brought out in the report.
- xi. One month fresh baseline may be collected to ascertain the actual carrying capacity and pollution loads in the region.
- xii. Further, Hon'ble NGT vide order dated 10.07.2019 in OA No.1038/2018 kept certain restrictions for red category projects in critically polluted areas and Singrauli is severely/critically polluted area, the pollution load certificate is to be obtained from the UPPCB. Further, the status of implementation of action plan to bring down the CEPI score below 70 may also to be provided by UPPCB. Further, any specific directions/action plan was given to M/s NTPC to bring down the pollution levels from the operating power plant.
- xiii. Details of CER budget earmarked for proposed project inline with the Ministry's OM dated 01.05.2018. The cost of EMP should be revised by separating the cost towards CER.
- xiv. The status and action plan to achieve 33% greenbelt including the ash ponds. A map showing the extent of greenbelt developed till date and proposed area for greenbelt along with project boundaries and ash ponds with areas shall be submitted.

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**(33.4) 4000 MW Ultra Mega Power Project (UMPP) near Village Kakwara, Taluk Katoriya, District Banka, Bihar by M/s Bihar Mega Power Limited – reg. extension of validity of ToR.  
(F.No. J-13012/4/2016-IA.I(T) & Online No. IA/BR/THE/117428/2019)**

- (33.4.1) Project Proponent has submitted online application on 09.09.2019 for extension of validity of ToR. The ToR has been issued for the 4000 MW UMPP in favour of M/s Bihar Mega Power Ltd. (wholly owned subsidiary of Power Finance Corporation Ltd.) on 7.6.2016 which was valid for three years (i.e. till 6.6.2019). Project Proponent has submitted the application for extension of ToR after expiry of the validity period. The Ministry's OM dated 29.08.2017 states that if the application for extension is submitted within the validity period, it can be extended by the Regulatory Authority without referring to the EAC. If the application is submitted after the expiry of the ToR validity, such proposals need the recommendations from the EAC for consideration by the Regulatory Authority. Accordingly, the proposal has been placed before the EAC.

(33.4.2) Project Proponent along with the QCI-NABET consultants M/s Desein Private Limited made the presentation and *inter-alia*, submitted the following information:

- i. PFC Ltd. has formed two SPVs: Bihar Infrapower Limited (BIPL) who will own the Land and Coal blocks, and Bihar Mega Power Limited (BMPL) will carry out detailed technical studies and select a suitable developer to build and operate the power plant.
- ii. BMPL had carried out various baseline and field studies from October to December, 2016 (Post- monsoon season) in compliance of ToR.
- iii. Land acquisition proposal (14 villages) of 2,181 acres of land for the Power Plant, Township and Ash dyke area as per CEA guidelines and under provisions of RFCTLARR Act, 2013, has been submitted to the District Administration (DA) on 29.12.2016.
- iv. Land acquisition proposal of R&R colony for 235 acres in two parcels of 135 acres and 100 acres of Dona and Jamkhut villages, Banka & Katoria block, adjacent to Power plant area on both sides of settlement in Dona village submitted to District Administration, Banka on 23.01.2017.
- v. Social Impact Assessment study of 2,181 acres land carried out by M/s Asian Development Research Institute (ADRI) appointed by DM, Banka, and the report is awaited.
- vi. Topographic Surveys, Area Drainage and Hydrological studies, Geo-technical Investigations and SIA studies have been carried out.
- vii. Land is mainly barren uncultivable waste land with patches of double cropping rain fed land.
- viii. The Secretary, Ministry of Coal (MoC) informed the Secretary, Ministry of Power (MoP) about the Coal Ministry's decision to allocate Pirpainti - Barahat "Coal Block" in Jharkhand to BMPL vide his D.O. 13016/6/2014-CA-III dated 23.11.2015. Formal letter of allocation was to be issued by MoC.
- ix. Pending letter of allocation, ToR was obtained from the MoEF&CC and EIA study was initiated.
- x. Simultaneously Coal Ministry was being pursued for formal allocation letter.
- xi. However, in MoC letter No. CBA1-13016/12/2017-CBA1 (FTS: 336523) dated 19.02.2018, the proposed coal block (Pirpainti-Barahat) was allotted to Bharat Coking Coal Limited. A new coal block is expected to be allotted to BMPL.
- xii. Due to delay in new coal block allocation, a lot of time was lost and hence applying for extension of validity of the ToR.
- xiii. The estimated project cost is Rs. 30,000.00 Crores.

(33.4.3) Committee noted that the condonation of delay in filing the application after expiry of ToR validity may be given by the competent authority in the Ministry. Committee further noted that Project Proponent had already collected the baseline data during October, 2016-December, 2016 which may become older than 3 years at the time of submission of final EIA report to the Ministry. PP may have to collect the fresh baseline data accordingly.

(33.4.4) **Committee after detailed deliberations, recommended for extension of validity of ToR for a period of one year (w.e.f 7.6.2019 till 6.6.2020)** subject to the following additional ToR:

- i. Fresh baseline data for one season is to be collected. The comparative analysis for the old baseline data (October-December, 2016) and the new data shall be presented in the EIA report.

- ii. The EIA report shall also address the action plan to implement the pollution control measures such as FGD and SCR/SNCR, etc for control of SO<sub>2</sub> and NO<sub>x</sub> respectively.
- iii. The EIA shall include all the industries located within 10 km radius into account for estimating the pollution load.

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**(33.5) 358 MW Gas Based Combined Cycle Power Plant at Nand Nagar Industrial Estate, Phase-II, Village Mahuakheraganj, Kashipur Tehsil, Udham Singh Nagar Dist., Uttarakhand by M/s Beta Infratech Pvt. Ltd- reg. extension of validity of EC.  
(File No. J-13012/99/2010-IA.II(T) & Online No.IA/UK/THE/116092/2019)**

(33.5.1) Project Proponent has submitted online application on 30.08.2019 for extension of validity of EC. The Environmental Clearance for establishing 358 MW gas based Power Plant has been issued vide Ministry's letter dated 31.01.2011 which was valid for five years, i.e. till 30.01.2016. As per EIA amendment Notification dated 14.09.2016 S.O.1141(E) dated 29.04.2015, the validity of EC is for seven years. As the said EC is valid on the date of publication of the EIA amendment notification dated 29.04.2015, the validity of the EC automatically gets extended to seven years, i.e. 30.01.2018. The validity of Environmental Clearance dated 31.01.2011 for further period of 18 months, i.e. till 30.07.2019 (total of 8 and ½ years). Project Proponent has submitted the application for extension after the expiry of the validity of EC (one month). As per the EIA amendment notification dated 14.09.2016, if the application is submitted within 30 days after expiry, condonation of delay is to be obtained from the Joint Secretary. The condonation of delay has been provided by the Joint Secretary. Accordingly, the project has been placed before the EAC for appraisal.

(33.5.2) Project Proponent made the presentation and *inter-alia*, submitted the following information:

- i. Construction of 225 MW (Phase-I) Gas based power project has been completed somewhere in 2012. All the efforts were made to commission the project but the project is yet to be commissioned as completion of pre-commissioning/ commissioning activities are pending. Remaining 133 MW (Phase-II) capacity could not be established till date.
- ii. Meanwhile, the project has been admitted to NCLT since 14.06.2019 on the petition filed by banks. Shri S.V. Satyanarayana has been appointed as Interim Resolution Professional by NCLT on 14.06.2019. He has been approved as Resolution Professional in the first meeting of Committee of Creditors.
- iii. The EC extension is sought as the availability of valid EC is big comfort factor for investors to participate in the bid being invited by NCLT for taking over the project.
- iv. Power Purchase Agreement has been signed between the project proponent and M/s Uttarakhand Power Corporation Ltd. on 01.03.2017 for 107 MW Power Generation out of 225 MW Capacity.
- v. Gas transportation agreement for 0.9 MMSCMD has been signed with GAIL on 19.10.2010. The gas pipeline to the plant has been completed and gas has been charged by the GAIL.
- vi. Original project cost is Rs.963.71 Crores (Direct Plant cost Rs. 859.49 Crores & Interest during construction Rs.104.22 Crores)



- vii. The present project cost is Rs.2,038.15 Crores (Direct Plant cost Rs.1,138.6 Crores and Interest during construction Rs.899.55 Crores).
- (33.5.3) Committee noted that the 225 MW Power plant has been constructed in 2012 and pending for commissioning due to want of last mile funds of about Rs. 60 crores from banks as informed by project proponent. Committee also noted that presently banks led by Vijaya Bank have admitted the company asset before NLCT under Insolvency Resolution Process. Committee also noted that the PPA and Gas Transmission Agreements have been made by the project proponent.
- (33.5.4) **Committee after detailed deliberations, recommended for extension of validity of EC dated 31.1.2011 for further period of one and half years w.e.f. 31.07.2019 till 30.01.2021 (total validity of 10 years)** subject to the following additional conditions:
- i. A copy of Orders of Hon'ble NCLT approving the resolution plan by the new incumbent is to be submitted to the Ministry.
  - ii. The progress of the project including the date of commissioning of the power plant is to be informed to the Ministry.

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**(33.6) 1x660 MW Ennore Supercritical Thermal Power Project (Expansion), Ernavur Village, Tiruvottiyur Taluka, Thiruvallur District, Tamil Nadu by M/s Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO)- reg. re-consideration of EC. (F.No. J-13012/15/2018-IA-I(T) & Online no. IA/TN/THE/2062/2018)**

- (33.6.1) Project Proponent vide online application dated 16.08.2019 applied for grant of Environmental Clearance. The proposal has earlier been considered by the EAC in its meeting held on 23.8.2019 and sought the information pertaining use of ash pond, clarification on certain facilities falling in CRZ area such as ash pond and ash slurry pipelines, ground water monitoring around the ash pond, details of installing FGD, exceeding the ambient air quality in the study area, action plan for achieving 33% greenbelt, clarification from TNPCB regarding public concerns, etc.
- (33.6.2) Project Proponent has submitted the information on 18.9.2019. The proposal has been accordingly placed before EAC in the present meeting. Project Proponent along with the QCI- NABET Consultants M/s Ramky Enviro Services Pvt. Ltd. have made the presentation inter-alia submitted the following information:
- i. The existing ash dyke earlier utilized for the now defunct is proposed to be utilized for the proposed ETPS Expansion Project. The ash dyke is located in Survey Nos. 237, 238, 239 of Edayanchavadi Village, Ponneri Taluk, Thiruvallur District. This is located west of the proposed project at a distance of about 1 km.
  - ii. Total area of existing Ash Dyke is about 175 acres out of which 61.40 acres had already been filled up and reclaimed for setting up North Chennai 765 KV Pooling Station, to evacuate the power from the ongoing North Chennai Thermal Power Project Stage-III (1x800 MW) and Ennore SEZ Thermal Power Project (2x660 MW).
  - iii. The balance area in the existing ash dyke 113.60 Acres out of which a small portion (10.5 acres) is falling within the CRZ, as per the latest CRZ Map. TANGEDCO undertakes that this area (10.5 acres) will not be utilized for

- dumping ash. A separate bund will be constructed leaving the CRZ portion and will be kept as “No activity Zone”. The PP submitted that this area will be taken up as part of development of green belt.
- iv. Balance ash pond available after deducting the area in CRZ: 103.1 Acres. Volume available for dumping wet ash in the existing pond 16,69,635 m<sup>3</sup> with the bund height of 4 m. About 2,00,000 Tonnes of ash has been deposited till date. Considering the ash density 700 kg/m<sup>3</sup>, this balance area can store about 11,68,744 Tonnes of ash.
  - v. With ash content of 6.62% in imported coal, the annual generation of ash is about 1,52,935 Tonnes/annum (Fly ash: 1,22,348 Tonnes & Bottom ash: 30,587 Tonnes).
  - vi. The present ash dyke area is sufficient to dispose bottom ash for 38 years, which is more than the life of the proposed ETPS Expansion TPP. However, there is a proposal for raising the height of bund for 3.5 meters. In such case, the volume of ash pond to dump the ash will be around 44,00,000 m<sup>3</sup>. The existing ash dyke has been constructed over a layer of impervious clay. Hence, no leaching will occur from the ash pond. Hence, no geo-textiles or lining was provided.
  - vii. The bottom ash is proposed to be pumped to the existing ash dyke through the existing ash pipelines earlier utilized for the defunct ETPS. The pipeline is laid over the existing RCC Bridge along with patrolling road. As such the pipelines do not disturb any water body or mangroves. The pipelines are well maintained and in good condition. Hence, the same pipelines will be used for proposed project.
  - viii. The details of the ground water monitoring samples collected from nearby villages/habitations. Nearest village of the ETPS Ash pond is Naapalayam (3.5 km) and Edayanchavadi (3.0 km).
  - ix. The existing ash pond and ash water lines components of the old ETPS are in good condition because of the periodical maintenance undertaken and it proposed to utilize the same facility for this ETPS expansion thermal power project (1x660 MW). The existing ash pipelines are laid over a RCC bridge with patrolling road crosses the back waters and Buckingham canal. Hence there will be no requirement for laying of new pipelines for transporting ash slurry and there will be no hindrance to the water bodies.
  - x. Some portion of existing ash pond area (i.e. 100 m from the HTL of back waters) is falling in the CRZ area as per the latest CRZ map and the same will kept as no activity zone. A new bund will be constructed in that area leaving the above no activity CRZ area.
  - xi. The proposal for installation of FGD is considered in the proposed ETPS expansion TPP and a budget of Rs. 500 Crores is allotted towards FGD and SCR in the EMP cost. Installation of FGD has already been provisioned in the (proposed) work award to M/s. BGRESL, which is yet to be animated after the receipt of Environmental Clearance. Further, it is submitted that the Power Project will be commissioned only after providing FGD and complying with all the environmental measures.
  - xii. The two locations of baseline AAQ stations which are having higher values are far away from the proposed ETPS Expansion project (Athipattu: 5.5 km NW & North Chennai: 6.5 km North) and they are in cross wind direction. The remaining seven locations of baseline AAQ stations which are within 4 km are having lesser PM<sub>10</sub> values.
  - xiii. One of the main reason of higher PM<sub>10</sub> values are the construction activities of NCTPS stage III (1x800 MW) and Ennore SEZ TPP (2x660 MW) which are nearby

and are in full swing and transportation of materials for the ongoing projects and nearby Ennore port causes the temporary raise in PM<sub>10</sub> level. Once the construction activities are over, the PM<sub>10</sub> level will be reduced. TANGEDCO assures to take stringent measures to reduce the pollutant levels by making suitable dust suppression control measures in the ongoing projects.

- xiv. The proposed project area and ash pond area together is (84.00 acres + 113.60 acres) 197.6 acres. The land area required to meet 33% of the total area as greenbelt is 65.2 acres.

Area available for greenbelt	Area
Area in the plant boundary	14 acres
Area available along the Buckingham canal (100x570 m)	14 acres
Greenbelt in the ash pond area falling in CRZ area	10 acres
Greenbelt around the ash dyke	27 acres
Total	65 acres (33% of the total area)

- xv. TNPCB has informed vide their letter dated 18.09.2019 that TNPCB has so far not received any comments from the Public after uploading of the EIA Report of ETPS Expansion TPP (1x660 MW).
- xvi. Sea water intake pipe line of 3.15 km and discharge pipeline of 1.55 km will be laid to meet the water requirement of the power plant and to discharge the water from cooling systems.
- (33.6.3) Committee noted that certain portion of ash pond and pipelines connecting ash pond and power plants are falling in the CRZ area and the present TNSCZMA recommendations dated 14.08.2019 do not explain whether the ash pond and associated facilities in the CRZ area have been examined or not. However, Project Proponent assured that the portion of ash pond falling in the CRZ area will not be used and kept under greenbelt area. Further, for laying of pipelines, it has been informed that there is already a RCC bridge constructed and the pipelines will be laid on the bridge without entering in to Coastal water and disturbed mangroves/marine life. Further, the existing ash pond would be sufficient to accommodate the ash generated from the proposed plant. It has been informed that Rs. 500 Crores have been allotted towards FGD and SCR for meeting new emission norms.
- (33.6.4) **Committee after detailed deliberations, recommended for grant of Environmental Clearance** subject to the following conditions:
- i. Any recommendations made by the CRZ division of the Ministry shall be binding and complied by the Project Proponent.
  - ii. An undertaking shall be submitted that Coastal Water, marine life and mangroves shall not be disturbed while laying pipelines over RCC bridge which had already been constructed in the CRZ area. The undertaking should also state that ash pond area falling in CRZ will not be constructed.
  - iii. Minimum of 100 m from the CRZ boundary shall be maintained for the ash pond on all sides. The land as part of CRZ area should be developed as greenbelt.
  - iv. The TNCZMA shall examine the ash pond area and pipelines crossing the CRZ area and communicate its findings and recommendations within 6 months for stipulating additional mitigation measures, if any.

- v. The Electrostatic Precipitator, Flue-gas Desulphurisation (FGD) System and NO<sub>x</sub> control systems shall be established to meet the new emission norms of PM:100 mg/Nm<sup>3</sup>, SO<sub>2</sub>: 100 mg/Nm<sup>3</sup> and NO<sub>x</sub>: 100 mg/Nm<sup>3</sup> and Mercury: 0.03 mg/Nm<sup>3</sup>. The progress of implementation of FGD and De-NO<sub>x</sub> systems shall be submitted to the Ministry.
- vi. The capital cost towards CER of an amount of Rs.13.6 Crores (0.25% of total project cost Rs.5,421.38 Crores) shall be earmarked separately and implement various developmental activities in the surrounding villages. The six monthly progress report on various welfare activities (such as infrastructure, health, education, skill training, livelihood generating activities, fishermen needs) in the villages within 10 km radius of the project, shall be submitted to the District Collector and as well as Regional Office of this Ministry. The District Collector may decide the extent villages beyond the 10 km radius, if needed. The District Collector should oversee the developmental activities in the villages based on the need and utilisation certificate annually shall be obtained by the District Collector.
- vii. The monthly ash generation (both bottom and flyash), utilisation and disposal to ash pond along with the breakup of ash utilised for various purposes shall be submitted as part of compliance report.
- viii. Date of commissioning (COD) of the plant shall be informed to the Ministry.
- ix. As committed, the greenbelt shall be developed in an area of 65 acres. The land area between Buckingham canal and project shall be developed with mangrove afforestation.
- x. The monthly quantities of sea water drawl, water consumption, discharge of cooling water, brine and other wastewater into the sea shall be submitted to the Ministry.

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**(33.7) 2x660 MW Imported Coal Based Thermal Power Plant of at Villages Dhanora, Chousara, Dagawani Pipariya, Hiwarkhedi and Thawriteka in Chaurai and Chhindwara Taluk, Chhindwara District, Madhya Pradesh by M/s Adani PENCH Power Ltd.- reg. extension of validity of EC. (F.No. J-13012/30/2010-IA II (T) & Proposal no.IA/MP/THE/116750/201)**

(33.7.1) Project Proponent vide online application dated 03.09.2019 applied for extension of validity of Environmental Clearance. The Environmental Clearance for establishing 2x660 MW Imported Coal based Power Plant has been accorded to M/s Adani PENCH Power Ltd. on 16.10.2012 which is valid for seven years, i.e. till 15.10.2019. M/s PENCH Thermal Energy (MP) Limited has now applied for extension of Environmental Clearance.

(33.7.2) Committee in the first instance noted that the company under which present application was submitted for extension of EC is different from the company for which EC was accorded. Project Proponent has informed that the company is the 100% subsidiary of M/s Adani Power Limited and an application for change in name of the company has been submitted to Ministry separately vide online application no.IA/MP/THE/108429/2019 on 18.6.2019. The Member Secretary informed that certain essential details were sought which were awaited from Project Proponent regarding status of the project, details of change in ownership, NOC from transferor, etc. It was informed that the EC transfer proposal does not require to be placed before EAC and it will be taken up by the Ministry directly. Further, Project Proponent informed that there is no change in ownership, and both the companies are 100% subsidiaries of M/s Adani Power Ltd. and only a name change has happened. Accordingly, Committee allowed the presentation.

(33.7.3) Project Proponent has made the presentation and inter-alia submitted the following information:

- i. The Power Project is based on Ultra Supercritical, Energy efficient & Environment friendly technology
- ii. Name of the Company has been changed from Adani Pench Power Limited to Pench Thermal Energy (MP) Limited with effect from 17th May 2019
- iii. Coal requirement for the project is 5.27 MTPA which will imported from South Africa. The water requirement for the project is 33.3 MCM per Annum which will be sourced from Pench Diversion Project.
- iv. Construction of the project could not be started in the absence of Power Purchase Agreement and Financial Closure. The project will be implemented once PPA is signed and financial closure is achieved.
- v. The land is in possession. Infrastructure such as boundary wall, site office, erector hostel, stores, etc have been developed.
- vi. Pre-engineered building for stores, basic engineering, technical specifications of the project and technical studies have been completed.
- vii. Further, due to the then prevailing policies with respect to coal allocation, no coal linkage was granted for the project, in the absence of which the project could not be completed.
- viii. It is pertinent to note that the Govt. of MP has assessed its long term power demand-supply scenario and has concluded that the state is likely to face significant power deficit in the next 4-5 years. The Govt. of MP in its Cabinet meeting dated 06.08.2019, has approved setting up of two units of 660 MW Thermal Power Projects each in the State of MP under the DBFOO competitive bidding guidelines, for fulfilling the state's future power demand. The press release in this regard issued by the Dept. of Public Relations, Govt. of MP.
- ix. It is also pertinent to mention that the Ministry of Coal, Govt. of India, has notified the new coal allocation policy i.e. the SHAKTI Policy dated 22.05.2017, which, inter alia, provides for allocation of coal for Fresh Long Term PPA's executed pursuant to a competitive bidding process, paving the way for allocation of coal for the project.
- x. Given the above, Govt. of MP shall soon initiate the competitive bidding process, and we would participate in the same through the Pench Project.
- xi. the Madhya Pradesh Power Management Company Ltd. has decided to procure electricity on a long term basis from a New Power Station of 1,320 MW capacity to be set up on super critical technology in the State of Madhya Pradesh through PublicPrivate Partnership on Design, Build, Finance, Own and Operate (the "DBFOO") basis by sourcing fuel from the Allocated Coal Linkage arranged by the Utility as per B (IV) SHAKTI Policy.
- xii. If the validity of EC is extended, the company can successfully bid for Power Purchase Agreement (PPA).

(33.7.4) Committee noted that there has not been any significant progress except construction of few buildings and boundary wall in the last seven years. PP informed that PPA has not been made which was the major reason for not going ahead with the project. Further, it was informed that the coal linkage was also not available. It is pertinent to mention that the EC issued was based on imported coal. Further, Project Proponent has given the schedule/PERT chart of implementing the project in 35 months from the zero date. However, the zero date will start only after signing the PPA which is expected in few months as informed by Project Proponent. The FGD and NO<sub>x</sub> control systems shall be required to be installed to meet revised emission standards as these were not stipulated at the time of grant of EC. The project cost estimated during

grant of EC was Rs.7,390 Crores is to be revised at the present cost and should also include the new pollution control equipment such as FGD, De-NO<sub>x</sub> systems which were not envisaged at the time of EC in 2012.

**(33.7.5) Committee after detailed deliberations, recommended for extension of grant of EC for a period of three years subject to the change in name of the company to M/s Pench Thermal Energy (MP) Limited** along with following additional conditions:

- i. Revised Project Cost at the current price shall be submitted. The revised cost shall also include the installation of FGD and De-NO<sub>x</sub> systems. The cost should separately indicate the amount earmarked for FGD and De-NO<sub>x</sub> system.
- ii. As committed, installation of ESP, FGD and De-NO<sub>x</sub> systems such as De-NO<sub>x</sub> burners along with SCR shall be implemented to meet new emission norms of PM:100 mg/Nm<sup>3</sup>, SO<sub>2</sub>: 100 mg/Nm<sup>3</sup> and NO<sub>x</sub>: 100 mg/Nm<sup>3</sup> and Mercury: 0.03 mg/Nm<sup>3</sup>.
- iii. The implementation of CSR activities in the surrounding villages along with expenditure shall be submitted to District Collector and the Regional Office of this Ministry.
- iv. Copy of fresh Coal and water linkages as and when obtained shall be submitted.
- v. Copy of PPA to be furnished and the zero date of construction shall be intimated. Progress of construction including installation of FGD, De-NO<sub>x</sub> systems shall be submitted to the Regional Office of the Ministry. Date of commissioning (COD) of units shall be informed to the Ministry.

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As there being no agenda item left, the meeting ended with a vote of thanks to the Chair.

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**Terms of Reference (TOR):**

- i) 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.
- ii) Vision document specifying prospective long term plan of the project shall be formulated and submitted.
- iii) 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.
- iv) 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.
- v) 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.
- vi) 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.
- vii) 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.
- viii) Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.
- ix) 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.
- x) 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.
- xi) 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.
- xii) The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.
- xiii) 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.
- xiv) 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.

- xv) 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.
- xvi) 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.
- xvii) 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.
- xviii) 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.
- xix) 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.
- xx) 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.
- xxi) 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.
- xxii) 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.
- xxiii) 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.
- xxiv) 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.
- xxv) Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished.
- xxvi) Feasibility of near zero discharge concept shall be critically examined and its details submitted.



- xxvii) Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.
- xxviii) Plan for recirculation of ash pond water and its implementation shall be submitted.
- xxix) 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.
- xxx) 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.
- xxxi) 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.
- xxxii) 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.
- xxxiii) A detailed CSR plan along with activities wise break up of financial commitment shall be prepared. CSR 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. Separate budget for community development activities and income generating programmes shall be specified.
- xxxiv) While formulating CSR 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). CSR details done in the past should be clearly spelt out in case of expansion projects.
- xxxv) 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.
- xxxvi) 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.
- xxxvii) 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-conducive 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.

- xxxviii) One complete season site specific meteorological and AAQ data (except monsoon season) as per latest MoEF Notification shall be collected and the dates of monitoring shall be recorded. The parameters to be covered for AAQ shall include PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and Hg. The location of the monitoring stations should be so decided so as to take into consideration of 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.
- xxxix) 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).
- xl) A list of industries existing and proposed in the study area shall be furnished.
- xli) 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 modeling 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.
- xlii) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
- xliii) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
- xliv) 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
- xlvi) 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.
- xlvi) 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.
- xlvi) 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.
- xlvi) 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.
- xlix) A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be

carried out. 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. Mock drills shall be suitably carried out from time to time to check the efficiency of the plans drawn.

- l) 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.
- li) 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 with tree density of 2000 to 2500 trees per ha with a good survival rate of around 80% 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.
- lii) 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.
- liii) Corporate Environment Policy
  - a. 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.
  - b. 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.
  - c. 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.
  - d. 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.

All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.

- liv) Details of litigation pending or otherwise with respect to project in any Court, Tribunal etc. shall invariably be furnished.

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**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 08.04.2016 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 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.
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>/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.
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 aswell 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 schedule 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).
- 3.

**M. Sea Water Intake:**

1. Seawater intake system shall be so designed and constructed to ensure sufficient seawater 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.

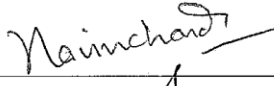
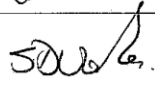

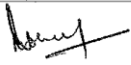
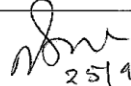
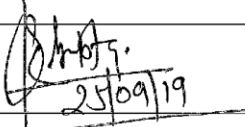
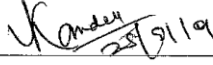
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## Attendance Sheet

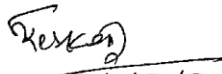
### LIST OF MEMBERS (Attendance Sheet)

#### 33<sup>rd</sup> EXPERT APPRAISAL COMMITTEE MEETING (Thermal)

DATE & TIME : 25<sup>th</sup> September 2019, 10:30 AM  
 VENUE : Brahmputra Hall, Vayu Wing, First Floor, Indira Paryavaran Bhawan, New Delhi

Sr.No.	Name of Member	Signature
1.	Dr. Navin Chandra Chairman	
2.	Shri Suramya D. Vora, IFS (Retd.) Member	
3.	Dr. Narmada Prasad Shukla Member	
4.	Sh. N. Mohan Karnat, IFS Member	 25/9/2019
5.	Dr. Sharachchandra Lele Member	- Abs -
6.	Sh. N.S. Mondal, CEA Member	 25/9/2019
7.	Dr. R.K. Giri, IMD Member	- Abs -
8.	Dr. S.K. Paliwal, CPCB Member	- Abs -
9.	Prof. S.K. Gupta (ISM/ IIT Dhanbad) Member	 25/09/19
10.	Dr. Jai Krishna Pandey Member	 25/9/19
11.	Dr. Manjari Srivastava Member	- Abs -
12.	Dr. Gururaj P Kundargi Member	- Abs -

13. Dr S. Kesketta  
Member Secretary

  
25/9/2019

## Approval of Minutes by the Chairman-EAC

10/10/2019

[https://mail.gov.in/iwc\\_static/layout/shell.html?lang=en&3.0.1.2.0\\_15121607](https://mail.gov.in/iwc_static/layout/shell.html?lang=en&3.0.1.2.0_15121607)

Subject: **Re: Draft 33rd EAC meeting of Thermal Sector - reg.**  
To: Dr S Kerketta <s.kerketta66@gov.in>

Date: 10/09/19 07:45 PM  
From: navin chandra <navinchandrarrl@yahoo.com>  
Reply-To: navin chandra <navinchandrarrl@yahoo.com>

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09/10/2019

Dear Dr. Kerketta Ji,

I have gone through the draft minutes of the 33rd EAC meeting. The Minutes are in order and ready for uploading on the website of the MoEF&CC.

(NAVIN CHANDRA)

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Dr. Navin Chandra,  
Chairman, Coal Mining & Thermal Power,  
MoEF&CC, GOI, New Delhi.  
Ex-Director General MPCST, Bhopal,  
Ex-Vice Chancellor, SSSUTM, Sehore (MP)  
(Retd.) Director (Actg.), CSIR-AMPRI, Bhopal  
Member, RC, CSIR-AMPRI, Bhopal.  
Phone (Res.) 91-755-2454600  
navinchandrarrl@yahoo.com, navinchandraampri@gmail.com

On Wednesday, 9 October, 2019, 6:04:03 pm IST, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Sir,

PFA for kind approval. Only one members sent comments as "nil".

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regards,

Dr. S. Kerketta  
Director- IA (Thermal, River Valley & HEP)  
MoEF&CC, New Delhi  
Phone: 011-24695314 (O), 26113096 (R)

**AGENDA OF 33<sup>rd</sup> MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON THERMAL POWER PROJECTS**

**DATE : 25<sup>th</sup> September, 2019**  
**TIME : 10.30 A.M. ONWARDS**  
**VENUE : Brahmputra MEETING HALL, First FLOOR, Vayu WING, IPB, JORBAGH ROAD, NEW DELHI-110003.**

<b>ITEM</b>	
<b>Item No. 33.0</b>	<b>CONFIRMATION OF MINUTES OF 32<sup>nd</sup> EAC (THERMAL) MEETING</b>
<b>Item No.</b>	<b>CONSIDERATION OF PROJECTS</b>
33.1	1080 MW Expansion Lignite based Thermal Power Plants at Village-Bhadresh, District-Barmer, Rajasthan by <b>M/s JSW Energy (Barmer) Ltd.- reg. ToR. (NABET accredited consultants also to be engaged at this stage)</b> F.No. J-13011/58/2006-IA.II(T) & Proposal no. IA/RJ/THE/110058/2019.
33.2	Disposal of fly ash generated from Talcher Super Thermal Power Station (Stage-I:2x500 MW & Stage-II: 4x500 MW) into abandoned mine voids of Jagannath OPC of Mahanadi Coalfields Limited in Talcher, Dist. Angul, Odisha by <b>M/s NTPC Limited- reg. amendment in EC.</b> F.No.J-13011/14/94-IA.II (T) pt & Proposal no. IA/OR/THE/116910/2019).
33.3	2x800 MW (Stage-III), Singrauli Super Thermal Power Project Tehsil Dudhi, Village Shaktinagar at District Sonbhadra, Uttar Pradesh by <b>M/s NTPC Limited. - reg. Environment Clearance.</b> (F.No.J-13012/09/2016-IA. I (T) and Online No. IA/UP/THE/117100/2016)
33.4	4000 MW Ultra Mega Power Project (UMPP) near Village KaKwara, Taluk Katoriya, District Banka, Bihar by <b>M/s Bihar Mega Power Limited – reg. extension of validity of ToR.</b> F.No. J-13012/4/2016-IA.I(T) & Online No. IA/BR/THE/117428/2019.)
33.5	358 MW Gas Based Combined Cycle Power Plant at Nand Nagar Industrial Estate, Phase-II, Village Mahuakheraganj, Kashipur Tehsil, Udham Singh Nagar Dist., Uttarakhand by <b>M/s Beta Infratech Pvt. Ltd- reg. extension of validity of EC.</b> (File No. J-13012/99/2010-IA II (T) & Online No. IA/UK/THE/116092/2019)
33.6	1x660 MW Ennore Supercritical Thermal Power Project (Expansion), Ernavur Village, Tiruvottiyur Taluka, Thiruvallur District, Tamil Nadu by <b>M/s Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO)- reg. re-consideration of EC.</b> (F.No. J-13012/15/2018-IA-I(T) & Online no. IA/TN/THE/2062/2018)
33.7	2x660 MW Imported Coal Based Thermal Power Plant of at Villages Dhanora, Chousara, Dagawani Pipariya, Hiwarkhedi and Thawriteka in Chaurai and Chhindwara Taluk, Chhindwara District, Madhya Pradesh by <b>M/s Adani Pench Power Ltd.- reg. extension of validity of EC.</b> (F.No. J-13012/30/2010-IA II (T) & Proposal no. IA/MP/THE/116750/2019)
33.8	ANY OTHER ITEM WITH THE PERMISSION OF THE CHAIR.

**Note:** If project documents are not submitted to Committee Members on time along with brief summary/basic information as per pro-forma, it will be the Committee's discretion to consider the project. Project proponents shall bring shape file (.kml file) containing project boundaries & facilities and shall be saved on computer in the meeting hall. Project Proponents are required to bring hard copy (A0/A1 size) and soft copy (pdf) of a map showing project facilities superimposed on Survey of India Toposheet. Proponents shall submit the attendance form duly filled to the Member Secretary before starting the presentation.