

## **MINUTES OF THE 28<sup>th</sup> MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS**

The 28<sup>th</sup> Meeting of the re-constituted EAC (Thermal Power) was held on 28<sup>th</sup> May, 2019 in the Ministry of Environment, Forest & Climate Change at Narmada Meeting Hall, Jal Wing, Ground Floor, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi under the Chairmanship of Dr. Naveen Chandra. The following members were present:

1. Dr. Navin Chandra - Chairman
2. Dr. N.P Shukla - Member
3. Dr.(Mrs.) Manjari Srivastava - Member
4. Shri N.S. Mondal - Member (Representative of CEA)
5. Dr. S.K. Paliwal - Member
6. Dr. S. Kerketta - Member Secretary

Shri Suramya Vora, Shri Mohan Karnat, Dr. Sharachchandra Lele, Shri Gururaj Kundargi, Prof. S.K. Gupta (Representative of ISM Dhanbad), Dr. R.K. Giri and (Representative of IMD) could not be present due to preoccupation.

### **Item No.28.0: CONFIRMATION OF THE MINUTES OF THE 27<sup>th</sup> EAC MEETING.**

The Minutes of the 27<sup>th</sup> EAC (Thermal Power) meeting held on 26.04.2019 were confirmed in presence of members present in the meeting.

### **Item No. 28.0: CONSIDERATION OF PROJECTS**

#### **28.1 Expansion by addition of 2x660 MW Stage-V (Unit-7 & 8) Coal based Thermal Power Plant at Village Thukrana, Suratgarh Tehsil, Sri Ganganagar Dist., Rajasthan by M/s Rajasthan Rajya Vidyut Utpadan Nigam Ltd.- reg. extension of validity of Environmental Clearance. (F.No. J-13012/14/2009-IA.II(T) & Proposal No. IA/RJ/THE/10394/2009).**

(28.1.1) Project Proponent submitted online proposal on 22.04.2019 for extension of validity of Environmental Clearance dated 23.5.2012 for one year (beyond seven years).

(28.1.2) The Environmental Clearance for 2x660 MW (Stage-V, Unit7 & 8) Power Project has been accorded by the Ministry on 23.5.2012 which is valid for five years, i.e. till 22.5.2017. By virtue of EIA amendment notification dated 14.9.2016 and the EC is valid on the date of publication of the notification dated 14.9.2016, the validity of the said EC automatically get extended for seven years, i.e. till 22.5.2019.

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

- i. Unit-7 (660 MW) had already been synchronised with designated coal on 18.12.2018. Steam blowing is in progress for Unit-8 (660 MW) and expected to be synchronised by July, 2019.
- ii. All activities related to commercial operation are at full swing and commissioning of units have delayed from their original schedule due to shortage of manpower and material being supplied by EPC contractor.

iii. Remaining constructional activities are on full swing to achieve commercial operations by June, 2019 (Unit-7) and October, 2019 (Unit-8) respectively as assured by EPC contractor (M/s BHEL).

iv. The major milestones of the project are as below:

Sr.No.	Activity	Unit-7	Unit-8
1	Hydro Test (Drainable)	31.12.2015 (Achieved)	15.3.2016 (Achieved)
2	Boiler Light Up	24.2.2017 (Achieved)	28.9.2017 (Achieved)
3	Turbine Box Up	20.1.2017 (Achieved)	9.11.2017 (Achieved)
4	Cooling Tower & CW System	May, 2019 (Achieved)	Sept, 2019 (Achieved)
5	Synchronisation	18.12.2018 (Achieved)	July, 2019 (Expected)
6	Declaration of COD	Oct, 2019 (Expected)	Feb, 2020 (Expected)

v. The detailed progress of Unit-7 (660 MW) is provided as below:

S.No.	Name of System	Progress (%)	Expected date of completion	Remarks
1.	Boiler	98.61	Completed	Balance works for trial run under progress.
2.	Turbo Generator	92.83	Almost completed	Balance works for trial run under progress.
3.	Ash handling plant	78.20	June' 19	Fly ash conveying system erection and commissioning are pending.
4.	Coal handling plant	49.20	July' 19	Work progress is very slow looking to the progress, expected completion in the month of July, 2019.
5.	CW & ACW System	99.20	Almost completed	Remote Operation of Pumps 4,5, 6&7 is pending.
6.	Raw water system	98.08	Almost completed	Gas chlorination system is pending.
7.	NDCT U#7	99.10	Almost completed	Drift eliminators not supplied.
8.	Chimney	98.08	Almost completed	Balance electrical work is in progress.
9.	Switchyard	96.00	Almost completed	Babai line work is pending
10	C&I system	96.00	May' 19	Work progress of acoustic leak detection system, CMMS/MIS system, CEMS. AAQMS, smart soot blower system, EPABX, PA System, PSSS, PCS of CAS, AC

				System CPU, ETP, STP ETC is pending.
11.	CPU		May'19	Erection completed and commissioning work is in progress.
	<b>Overall progress</b>	<b>89.17%</b>		

vi. The detailed progress of Unit-8 (660 MW) is provided as below:

S.No.	Name of System	Progress up to date (%)	Expected date of completion	Remarks
1.	Boiler	96.12	May' 19	Steam blowing and further commissioning activities are under progress.
2.	Turbo Generator	88.38	Almost completed	Barring gear engaged on 05.02.2019. Steam blowing is under progress.
3.	Ash handling plant	58.50	July' 19	Fly ash conveying system erection and commissioning are pending. Bottom ash de-ashing line from bottom ash hopper to ash slurry sump is under progress.
4.	Coal handling plant	28.64	Sept' 19	Work progress is very slow looking to the progress, expected completion in the month of Sept., 2019.
5.	NDCT U#8	99.10	Almost completed	Work progress is very slow. Acute shortage of manpower & material constraint.
	<b>Overall progress</b>	<b>89.17%</b>		

vii. The project Cost as per the EC is Rs.7920 Crores. The revised cost is Rs.9161.35 Crores for which State Government approval is awaited.

viii. The employment is 1328 persons in the proposed project.

(28.1.4) Committee noted the synchronisation of the Unit-7 is completed and the major work of Unit-8 is expected to be synchronised by July, 2019. Committee noted that the extension is sought for one year as per online application. However, actual commissioning would take about maximum of three months from the date of synchronisation, if all the construction works is completed. The reasons for keeping maximum gap (10 months for Unit-7 and 7 months for Unit-8) between synchronisation and COD is not known. Further, the details of implementation of achieving revised emission norms as per Ministry's Notification dated 7.12.2015 are not known for existing units (6x250 MW) aswell as the units under

construction (2x660 MW). Whether CPCB has given any extension to meet the emission standards is also not known. It was informed that the tenders for FGD are to be floated for the proposed project.

(28.1.5) Committee after deliberations, **deferred** the project for seeking following information for further consideration:

- i. Water allocation letter from the State Government.
- ii. The details of ash pond (area & volume).
- iii. Details of use of flyash for achieving 100% utilisation as per the Flyash notification.
- iv. Copy of latest report submitted to CEA regarding progress and implementation of new emission norms.
- v. A firm plan and commitment with financial allocations and timelines for commissioning pollution control equipment (FGD, De-NOx systems, etc.).
- vi. Copy of CPCB extension, if any, for achieving revised emission norms.
- vii. The details of budget for implementation of CSR/CER activities as per the revised project cost in line with Ministry's Office Memorandum vide dated 1.5.2018.
- viii. A copy of latest six monthly EC compliance report.

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**(28.2) Proposed 2x660 MW Super Critical Thermal Power Project (Expansion) within the premises of 2400 MW Koradi Power Plant at Village Koradi, Tahsil- Kamptee, District Nagpur, Maharashtra by M/s Maharashtra State Power Generation Company Limited (MAHAGENCO)-reg. ToR. (F.No.J-13012/07/2019-IA.I(T) & Online no. IA/MH/THE/102533/2019).**

(28.2.1) Project Proponent has submitted online application on 20.04.2019 for grant of ToR for establishing 2x660 MW Thermal Power Project in the premises of existing Koradi Power Plant of 2x210 MW and 3x660 MW capacity.

(28.2.2) Project Proponent along with EIA Consultants M/s Pollution and Ecology Control Services made the presentation inter-alia submitted the following information:

- i. M/s MAHAGENCO operates two units of 210MW each commissioned in 1982-83 and three supercritical units of 660MW commissioned in the year 2016-2017.
- ii. MAHAGENCO has now proposed two units of 660 MW units deploying supercritical steam parameters.
- iii. The proposed site is well connected with road network. Nearest railway station is Godhni Railway Station: 5.0 km. The site is connected to NH69 Nagpur Bhopal National highway at 1.0 Km. Outskirt of Nagpur city is 4.0 Km.
- iv. Vacant land is available within the boundary wall of the existing TPS which is adequate to accommodate the proposed units along with all its auxiliary systems.
- v. The proposed coal based thermal power plant will be on land of closed 4x120MW and 200 MW unit and associated structure at existing Korardi TPS.
- vi. Total 275.39 ha land is identified for proposed project. Other utilities can be accommodated within the available space of MAHAGENCO's existing power plant after demolishing the existing structures as required.
- vii. There is no forest land involved in the project and there are no National Park/Sanctuaries within 10 Km radius of the project.

- viii. Coal requirement for this project is 7.18 MMTPA with consideration of worst coal of GCV 3200 Kcal/kg at BMCR at 85% PLF. It is proposed to utilize existing coal linkages to the tune of 3.165 MMTPA of those units (Koradi Unit-5: 200 MW decommissioned on 2.3.2017, Nashik Unit-4&5:2x210 MW to be decommissioned in July, 2020 & Jan, 2021) which are either closed or going to close up to FY 2023-24.
- ix. For balance coal requirement of @ 4.015 MMTPA, it is proposed to use the coal from M/s WCL's Umred and its nearby coal mines; for which necessary Fuel supply agreement shall be made.
- x. In existing plant operation coal is being transported by trucks from WCL mines and rail wagon from SECL. The work of construction of Pipe conveyor is under progress for transportation of coal from Singhori, Bhanegaon, Gondegaon, Inder and Kamthi. The coal from Umred area of WCL will be transported by Rail.
- xi. For the proposed power plant two types of water are proposed to be used namely Tertiary treated waste water and Pench Dam water. Tertiary treated sewage water from Nagpur Municipal Corporation for cooling circuit and other non-critical uses. Water would be conveyed through cross country pipeline at a distance of 11km. Pench dam water for process use. Raw water for existing TPS is met from Pench dam at a distance of around 40Km. The cooling and consumptive water requirement for the proposed 2x660 MW station is 1500 m<sup>3</sup> /hr (10.8 MM<sup>3</sup> /annum) of river water and 3500 m<sup>3</sup> /hr (25.2 MM<sup>3</sup> /annum) of tertiary treated sewage water respectively. Tertiary treated sewage water will be received from the proposed Sewage Treatment Plant under NMC. Total water requirement for proposed thermal power project is 36 Million cubic metres per annum.
- xii. The station will generate approx. 2.48 MMT of ash per annum, of which about 80% (1.98MMT) is fly ash and 20% (0.5MMT) Bottom ash.
- xiii. A fly ash cluster is under development in Koradi for utilization of fly ash. It is expected that this cluster will be operational by 2021. The 100 % ash will be utilized as per MoEF notification.
- xiv. LDO and HFO would be required for cold start-up and flame stabilization at lower load. The requirement of fuel oil has been estimated to be about 29,490 KL per annum. LDO 9830 KL/annum and HFO 19660 KL/annum. Fuel will be transported by rail route to the plant site from the nearest depot.
- xv. The power evacuation from new 2x660 MW units will be evacuated through a dedicated 400 kV switchyard of MAHATRANSCO.
- xvi. Adequately designed electrostatic precipitators with more than 99.89% efficiency are envisaged for control of PM emissions. The amount of SO<sub>x</sub> emissions shall be less than 100mg/Nm<sup>3</sup> after installation of FGD (Flue Gas Desulfurizer) system for each unit by combining common utilities and the installation of chimney as per MOEF guidelines. The amount of NO<sub>x</sub> emissions shall be less than 100mg/Nm<sup>3</sup> after installation of SCR for each unit after economizer outlet when the units are operating at MCR.
- xvii. A total capital outlay of Rs.9,882 Crores, including interest during construction and other financial charges, would be involved. A total manpower requirement of 534 persons has been envisaged for the propose station.

(28.2.3) Committee noted that the following details of existing units of Koradi Power Plant from the information provided by the Project Proponent:

Units Number	Capacity	Commissioning	De-commissioning	Remarks
Units:1,2,3 & 4	4x120 MW	Not available	Not available	EC is not available
Unit: 5	200 MW	Not available	July, 2018	
Units:6 & 7	2x210 MW	1982	Operational	
Units:8, 9 & 10	3x660 MW	16.12.2015, 22.11.2016 & 17.1.2017	Operational	EC issued on 4.1.2010

(28.2.4) Further, the Environmental Clearance for Units: 8-10:3x660 MW have been granted by the Ministry on 4.1.2010. The EAC in its meeting held on September, 2009, while recommending for grant of Environmental Clearance for 3x660 MW (Units-8, 9 & 10) stipulated that FGD for one unit will be installed initially and the requirement, if any, for the installation of FGD system with the other two units will depend upon the prevalent ambient levels of SO<sub>2</sub>. Based on the recommendations of the EAC, the Ministry while granting Environmental Clearance for 3x660 MW Power Project at Koradi on 4.1.2010 has stipulated the same condition to install FGD for one unit.

(28.2.5) Subsequently, Project Proponent in 2012 requested for waiver of the EC condition which stipulates to install FGD. The proposal was considered by the EAC in its meeting held in August, 2012. The observations of the EAC are as follows:

- i. EAC noted that the stipulation of *FGD was insisted upon only for one unit keeping into consideration the close proximity of Nagpur city which is located only at about 6.0 km from the plant and for other units based on requirement on AAQ prevalent then. The Committee had observed that the justification provided by the project proponent is only valid from its commercial interest and does not hold merit when it comes to public health interest.*
- ii. *The predicted SO<sub>2</sub> concentration from 3x660 MW with 3 flues were of the order of 50.9 µg/m<sup>3</sup> in pre-monsoon season resulting in AAQ concentration of 69.2 µg/m<sup>3</sup> including the existing baseline value of 18.3 µg/m<sup>3</sup>(which is much higher than the results given by project proponent viz. 24.0 µg/m<sup>3</sup> + 18.3 µg/m<sup>3</sup> = 42.3 µg/m<sup>3</sup>. The value may become higher in winter season owing to lower mixing height. The project could be reviewed for FGD after submission of winter data during December 2010 to February 2011.*
- iii. *Further, baseline NO<sub>x</sub> values reported for Nagpur by MPCB (63 µg/cu m) are also high. As such, winter season NO<sub>x</sub> may be monitored to ascertain the accurate status of air quality”.*
- iv. Since the decision to stipulate FGD for initially one unit was taken consciously keeping Nagpur air quality in mind and as proposed by the project proponent a proper and through examination was as such necessary before a conscious decision is taken. **The Committee therefore declined to accede with the request for waiver of FGD in its present form of information made available.**

(28.2.6) Subsequently, Project Proponent has requested once again for waiver of FGD in 2016. The EAC in its meeting held on 27.7.2016 has not recommended for waiver of installation of FGD.

Subsequently, as the MPCB was insisting for compliance of EC condition to install FGD for granting Consent to Operate for Unit-9 (660 MW), the matter was considered on request of M/s MAHAGENCO. Accordingly, the EAC in its 1<sup>st</sup> meeting held on 28.12.2016 recommended for providing sometime which is inline with the MoEF&CC Notification dated 7.12.2015, i.e. to install pollution control measures to meet revised norms within two years, i.e 7.12.2017. An amendment was also issued in this regard on 23.3.2017

Accordingly, Project Proponent is supposed to set up new pollution control equipment including FGD by 7.12.2017 for one unit as per the EC amendment letter dated 23.3.2017. However, as per the Ministry's Notification dated 7.12.2015, project proponent is required to install pollution control equipment for all units. The status of implementation has not been furnished.

(28.2.7) Further, committee noted that the land to be used for setting up of proposed project is not ready as the shut down units 4x120 MW are still to be demolished. The amount of land available for the proposed power project is not clear as where these units will be set up. Further, the committee noted that CPCB has given directions u/s 5 of E(P) Act, 1986 vide their letter dated 22.8.2017. The details of withdrawal of the said directions along with action plan are not available. Further, Committee noted that Nagpur City and Koradi Town are just adjacent to the Power Plant. The CPCB inspection report mentions that Varegaon, Chakki Chappa and Suradevi Villages surrounding the plant are facing dust problems. Further, the Varegaon village is located between the two ash ponds of Koradi and Kaperkheda Power Plants. The transportation of ash by trucks and the bad road conditions are creating dust problems in Suradevi Village. Further, the CPCB report mentions that though the PM levels are within the standards, the SO<sub>2</sub> emissions are in the range of 1400-1500 mg/m<sup>3</sup> and NO<sub>x</sub> levels are in the order of 270 mg/Nm<sup>3</sup> as against 100 m<sup>3</sup>/Nm<sup>3</sup> each. As the effective pollution control equipment to meet the revised emission norms for the existing units are yet to be installed and the existing base load of pollution of region appears to be high, a decision for going ahead with the proposed project is to taken until existing units are complying with emission norms.

(28.2.7) Committee after deliberations, recommended for a site visit by the sub-committee comprising of following members to review the pollution levels of the surrounding area, the emissions of the existing plant, the cumulative impact of Koradi and Kaperkheda Power Plants, the impact on adjacent Nagpur and Koradi towns, the status of implementation of pollution control equipment to meet revised emission norms, the availability of land without compromising the greenbelt area within the plant boundary, etc.:

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|--|---|----------|
| i. Dr. N.P. Shukla                       | - | Chairman |
| ii. Shri Gururaj Kundargi                | - | Member   |
| iii. Shri N. S. Mondal, CEA              | - | Member   |
| iv. Dr. S.K. Paliwal, CPCB               | - | Member   |
| v. Representative of RO, MoEF&CC, Nagpur | - | Member   |
| vi. Representative of MoEF&CC, New Delhi | - | Member   |

**Accordingly, the proposal has been deferred till the submission of the site visit report of the Sub-committee.**

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**(28.3) 4x270 MW (1080 MW) Coal based Bhadradi Thermal Power Station (BTPS) at Villages Ramanujavaram, Eddulabayyaram & Seetharampuram, Mandals Manuguru & Pinapaka, District Bhadradi Kothagudem (Erstwhile Khammam dist.), Telangana by M/s Telangana State Power Generation Corporation (TSGENCO) Ltd. – reg. permission for coal transportation by road. (F.No. J-13012/02/2015-IA.I (T) & Proposal no. IA/TG/THE/105598/2019).**

(28.3.1) Project Proponent submitted online application on 16.05.2019 for permission for coal transportation by road for a period of three years.

(28.3.2) The project proponent along with Environment Consultants M/s B S Envitech Pvt. Ltd. have made the presentation inter-alia furnished the following information:

- i. The Environmental Clearance for 4x270 MW Bhadradi Thermal Power Project has been granted by the Ministry on 15.3.2017.
- ii. The first unit (270 MW) is scheduled to be commissioned in June, 2019 and balance three units by December, 2019. The dedicated railway siding of BTPS has not yet commissioned due to delay in land acquisition.
- iii. The alignment of proposed railway line from Manuguru Railway Station to Bhadradi Thermal Power Station for a length of 20.25 km and the extent of land acquisition is 171.19 acres out of which 64.10 acres is the forest land and remaining 107.09 acres is the patta land.
- iv. The submission of Preliminary Notification proposals by the Sub-collector, Bhadrachalam is under process. Further, regarding forest clearance for 64.10 acres, the proposal is with the Conservator of Forests, Kothagudem for identification of Compensatory Afforestation land. After handing over the land to the TSGENCO, it would take about 2-2.5 years to lay railway line along with siding. The process of land acquisition is delayed due to sequential elections in the State and Centre.
- v. The total quantity of 13,000 Tons/day coal is to be transported from Manuguru Opencast Mines of M/s Singareni collieries Company Ltd. with an approximate distance of 17 km. About 655 tucks /day (to and fro: 1310 trucks) will ply on the road.

(28.3.3) Committee noted that the Traffic Impact Assessment report prepared by environmental consultant is not providing any reliable information on the width of the road, nature of the road, the loadbearing capacity of the road, the details of baseline data such as air quality, noise quality and traffic monitoring locations and its quality collected from various locations. Further, the air quality predictions made in the report are not representing the factual status on ground. The details of input emissions and weather class/meteorology considered shall also be provided in the report to estimate the predicted concentrations of various



air quality parameters. The details of villages, forests, habitations along the route may also be provided.

(28.3.4) Committee after deliberations, **deferred** the project for want of following information:

- i. Revised Traffic Impact Assessment report incorporating details of roads, traffic sufficiency and load bearing capacity, details of modelling parameters and results, details of villages, habitations and forests and impact of proposed traffic on them.
- ii. The progress report containing milestones for completing all activities of railway siding/line with timelines.

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**(28.4) 55 MW Municipal Solid Waste Power Project (Using Cold Plasma Technology to convert Green Power, Purified Water and Fuel at East Delhi Municipal Corporation Opp. Gagan Theatre, Wazirabad Road, Mandoli Extension, Village Mandoli, Delhi by M/s A.G. Dauters Waste Processing Private Limited. - reg. reconsideration of ToR. (F.No. J-13012/13/2018-IA.I (T) & Proposal no. IA/DL/THE/84113/2018).**

(28.4.1) Project Proponent has submitted online application on 31.10.2018 for grant of ToR for establishing 55 MW Waste to Energy Power Project from 200 Tons per Day Municipal Solid Waste. The proposal is based on Cold Plasma Gasification Technology which will convert MSW into 55 MW of Green Power, 925 KLD Purified Water and 925 KLD fuel.

(28.4.2) The proposal has been considered by the EAC (Thermal Power) in its meetings held on 30.11.2018, 22.2.2019 and 27.3.2019. The EAC in its meeting held on 27.3.2019 recommended that the proposal may be referred to Institute of Plasma Research, Gandhinagar, and the Institute be requested by the Ministry to provide a critical appraisal of the technical feasibility of and likely emissions from the proposed technology. Thereafter, the recommendations may be placed before the Committee for arriving at an informed decision. An expert from Central Electro Chemical Research Institute may also be co-opted in the EAC meeting for detailed examination to ensure clarity on the proposal. Accordingly, the proposal has been deferred till such time the above issues are resolved.

(28.4.3) As there is no WtE power plant in the Country which is working on this technology and the plasma reactor as informed will operate at 10,000-14,000 °C which will have safety implications on the surrounding areas. The proposal has been referred by the Ministry to the Institute of Plasma Research, Gandhinagar for evaluating the technical feasibility of the said proposal.

(28.4.4) M/s AG Dauters Waste Processing Private Limited attended a meeting organized by the Institute on 29.4.2019 have provided the following information against the questions posed by the Institute:

- i. The technology and process are proprietary and they cannot reveal/disclose the process details.
- ii. The inert in the waste are dissolved in the fluid and converted to gas.
- iii. Very small fraction of the residue is collected as hard material "plasma rock" based on the commercial value of the element.

- iv. One system installed in USA (defense establishment) and hence cannot be demonstrated.
- v. One water purification demonstration system at their Lab in USA.

(28.4.5) The Institute made the following observations based on the information provided by the Project Proponent:

- i. Presenters did not show any slide pertaining to cold plasma and its role in the claimed technology for disposal of waste. By definition, the cold plasma cannot dispose/vitrify solid waste.
- ii. It appears that their technology is mainly linked with hydrogen generation from water using their proprietary process. The role of plasma is unclear and non-convincing.
- iii. Their claim of using cold plasma for gasification contradicts with their claim of getting plasma rock as output at the temperature of 4000°C. Such high temperatures (4000°C or more) cannot be achieved by cold plasma.
- iv. Their basic line diagram for waste to energy conversion is unclear as it does not tell anything about mass and energy flow in the system.
- v. The claim of zero emission and zero residue after disposing mixed solid waste which contains ~40% of inert (inorganic materials such as silica, alumina, metals etc.) is unjustified.
- vi. M/s AG Dauters could have explained the processes and its simple scientific principles without divulging the proprietary information, which was however not done.

(28.4.6) The institute noted that the acceptance of any new technology for the disposal of mixed solid/liquid waste requires a complete solution and it should not generate any polluting by-products (solid, liquid or gas) in the environment and show economic viability. Considering these requirements, committee has evaluated the proposal of M/s AG Dauters Waste Processing Pvt. Ltd. and made the following recommendations:

- i. The committee is not convinced with the process, technology and non-convincing scientific principles explained by M/s AG Dauters and therefore, in present scenario establishing large capacity (55 MW output) plant with the proposed technology is not recommended.
- ii. MoEF&CC may advise M/s AG Dauters Waste Processing Pvt. Ltd. to demonstrate the waste disposal technology at lower capacity (e.g. 1 MW or lower) electric power generation by disposing legacy municipal solid waste as a proof of concept of the technology by fulfilling the appropriate environmental norms.

(28.4.6) Based on the recommendations of Institute of Plasma Research, the Ministry has taken a decision to allow for 15-20 MW WtE Project as a demonstration/pilot project. Ministry has also taken a decision that until this project is proven successful, no other project on Cold Plasma Gasification is allowed. Accordingly, the proposal has been referred to the EAC for prescribing the Terms of Reference.

(28.4.7) The Committee noted that the size and capacity of the project for demonstration or pilot project to be allowed had already been decided by the Ministry and EAC has been given only option to prescribe the Terms of Reference for the 15-20 MW

Waste to Energy Power Project. In view of the EAC, the 15-20 MW capacity of project consuming 200 Tons per Day Municipal Solid Waste is also on higher capacity. The Ministry would have allowed up to the size of 5 MW.

(28.4.8) Committee noted that the detailed process and material balance of the plasma gasification are not available. In absence of the details of the specific activities and end to end individual process, it is difficult to identify the required studies to be conducted in the scoping process. However, the committee is prescribing the ToR with the limited information supplied by the Project Proponent. Further, Committee suggest that the Ministry may write to all SEIAA and State Governments that no other Waste to Energy project on Cold Plasma Gasification is permitted until the present project is established and proven its safe operations.

(28.4.9) Committee after detailed deliberations, **recommended for grant of the following ToR** in addition to the Standard ToR at Annexure-A1:

- i. The Project Proponent agreed to establish 20 MW Municipal Solid Waste Power Project (Using Cold Plasma Technology) to convert Green Power, Purified Water and Fuel at East Delhi Municipal Corporation Opp. Gagan Theatre, Wazirabad Road, Mandoli Extension, Village Mandoli, Delhi as a trial run.
- ii. Since the project proponent has not disclosed the details of the technology, its impact on environment, safety appraisal *vis-a-vis* effect on environment etc. could not be assessed. Hence, the proponents shall be solely and totally responsible for any adverse effect arising during implementation of the proposed project.
- iii. The risk assessment studies considering worst case scenario failures and consequences shall be conducted for the main reactor chamber, the storage of inflammable and hazardous materials, units containing high pressure and temperature.
- iv. The EIA study should delineate the process involved in the waste to energy conversion process, various resources to be used in the process, the physico-chemical and boundary conditions of each process.
- v. The Calorific value, Ultimate and Proximate analysis of the Municipal Waste is to be analysed. The energy conversion from the input waste and efficiency of the shall also be indicated.
- vi. Various emissions, wastes and wastewaters generated in the process and its elemental characterisation with along with heavy metals are to be detailed in the EIA report.
- vii. The safe disposal mechanism of the waste generated from the process shall be proposed. The waste shall be analysed for determination of hazardous characterisation.
- viii. Public Hearing shall be conducted at the project site or close proximity to the project. Further, Public Consultation process defined under EIA Notification and its amendment shall be followed.

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**(28.5) 2x660 MW Super Critical Coal based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mai Kalam Villages, Taluk Meja, District Allahabad, Uttar Pradesh by M/s Meja Urja Nigam Pvt. Ltd.- reg. extension of validity of EC.**

**(F.No. J-13012/03/2008-IA.II(T) & Proposal no. IA/UP/THE/104912/2019).**

(28.5.1) Project Proponent has submitted online application on 09.05.2019 extension of Environmental Clearance dated 10.1.2011 for further period of one year. The EC dated 10.1.2011 is valid for 8 ½ years, i.e. till 9.7.2019. Project Proponent requested for another one year, i.e. till 8.7.2020.

(28.5.2) Project Proponent made the presentation inter-alia submitted the following information:

- i. The Environmental Clearance for 2x660 MW Meja Thermal Power Project has been accorded vide Ministry's letter dated 10.1.2011 which was valid for five years, i.e. till 9.1.2016. By virtue of EIA amendment Notification dated 29.4.2015, the validity automatically get extended for seven years, i.e. till 9.1.2018.
- ii. Subsequently, Ministry has extended the validity of EC for a period of one year, i.e. till 9.1.2019 vide Ministry's letter dated 8.1.2018.
- iii. Subsequently, Ministry has once again extended the validity of EC for further period of six months, i.e. till 9.7.2019 along with transportation of coal by road till 31.3.2019 vide Ministry's letter dated 28.3.2019.
- iv. The overall validity of EC is 8 ½ years which get expired by 9.7.2019. The unit-1 (660 MW) has been commissioned on 31.3.2018 and full load operations were successfully completed on 16.10.2018. The COD of Unit-1 has been declared on 30.4.2019.
- v. Unit-2 (660 MW) is expected to be commissioned by March, 2020. The delay in implementation is due to delay in land acquisition for railway siding work, delay in supplies of Engineering equipment and materials due to merger of M/s Hitachi and M/s Mitsubishi Heavy Industries, termination of contracts with three agencies due to poor performance, financial crisis, insolvency and bankruptcy, etc.
- vi. The status of Unit-2 is: Boiler hydro test was completed in October, 2018. TG Box up has been done. TG oil flushing is in progress and boiler light up is expected in October, 2019.
- vii. Financial performance of SG & TG Agency. SG- Rs.1,715 out of 2,169 Crores (79%) and TG Rs.1,498 out of Rs.1,778 Crores (85%).
- viii. Total expenditure of the project incurred till dated is Rs.9,533 Crores out of total revised project cost of Rs.12,176 Crores.

(28.5.2) Committee noted that the COD of the Unit-1 has been declared on 30.4.2019 which is within the validity period. The second unit is expected to commission by March, 2020. Committee has noted that the installation of FGD and De-NO<sub>x</sub> systems to meet the revised emission norms is yet to be installed for the Unit-1. It has been informed that execution for FGD has been recently awarded and may take about 30 months to install/commission the new pollution control equipment. A condition has been stipulated in the EC validity letter dated 8.1.2018 that the new emission norms are to be met at the time of COD. The Unit-1 had already been achieved COD. However, the pollution control equipment meet revised emissions are yet to be installed. Further, Project Proponent has not

furnished any extension granted by CPCB in this regard. The Ministry may take a separate call on this.

- (28.5.3) Committee after detailed deliberations **recommended for extension of validity of the EC dated 10.1.2011 for further period of one year**, i.e. till 9.7.2020 subject to the following additional conditions. Further, EAC opined that Ministry may take an appropriate action for not installing FGD, De-NO<sub>x</sub> systems for Unit-1 even though it is in operation:
- i. The extension of Environmental Clearance is only for continuing the construction activities of the Unit-2. However, the operations shall be started only when new pollution control equipment is installed and made ready to meet the revised emission norms issued vide dated 7.12.2015. Otherwise, an extension from the CPCB shall be obtained and submitted to the Ministry.
  - ii. The average weekly emissions of flue gas for PM, SO<sub>2</sub> and NO<sub>x</sub> shall be submitted as a part of the compliance report. Further, the Mercury emission data shall also be submitted.
  - iii. The progress of the installation of FGD, De-NO<sub>x</sub> systems along with the financial expenditure shall be submitted along with six monthly compliance report.

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**(28.6) 2x800 MW (Stage-I) Darlipali Supercritical Coal Based Thermal Power Plant at Village Darlipali, Lephripara Taluk, Sundergarh District, Odisha by M/s NTPC Ltd-. reg. amendment in EC. (F.No. J-13012/65/2008-IA-II(T) & Proposal no. IA/OR/THE/105399/2019).**

(28.6.1) Project Proponent has submitted online application on 14.05.2019 for amendment in EC conditions in related to CSR expenditure.

(28.6.2) The specific condition No. xxxi of the Environmental Clearance dated 17.2.2014 is as follows:

“An amount of Rs.46.0 Crores shall be earmarked as one time capital cost for CSR programme as committed by the project proponent. Subsequently a recurring expenditure of Rs.9.10 Crores per annum till the life of the plant shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within six month with road map for implementation.”

(28.6.3) Committee noted that the Circular dated 1.5.2018 on CSR/CER activities has provided for one time amount in certain percentages based on project cost and whether it is Greenfield or brownfield. W.r.t. the CSR expenditure during operation period, the Section 135 of the Companies Act, 2013 has a provision to spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years. It is also logical that the recurring expenditure on CSR activities should be proportionate to the profits earned by the operations. Project Proponent cannot spend the amount for the welfare of surrounding people, if no profits are not earned by them. As the recurring expenditure on CSR activities had already been

covered by the Companies Act, Committee is of the opinion that there should not be any overlapping amounts additionally stipulated by the Ministry. Accordingly, the recurring expenditure on CSR in the ECs should be inline with the Companies Act. Regarding Capital expenditure on CSR/CER, the Ministry had already stipulated the amount to be spent on a case to case basis. Now, Ministry has issued a Circular with minimum expenditure based on certain percentage of project cost.

(28.6.4) The estimated project as per the EC is Rs. 11,396.95 Crores. For the present project since it is greenfield project and the project cost is between Rs.1000-10,000 Crores, accordingly, 0.25% of the project cost would be Rs.28.5 Crores. However, Ministry while granting EC has stipulated the amount of Rs.46.0 Crores which is higher than the new amount.

(28.6.6) Committee after detailed deliberations, **recommended** for following amendments in the Environmental Clearance:

- i. With respect to the Capital Expenditure on CER/CSR activities as one time amount should be in-line with the Ministry's Circular dated 1.5.2018 or the amount stipulated in the EC, whichever is higher. Project Proponent has to submit the revised/latest project cost, calculate the one time CER expenditure based on revised project cost, compare with the amount stipulated in the EC and adopt the highest amount. The details in this regard along with an undertaking to adopt the highest amount shall be submitted within three months.
- ii. With respect to the recurring CSR expenditure, any condition stipulating the recurring amount per annum in the EC may be made redundant. The recurring amount shall be in-line with Section 135 of Companies Act, 2013 which states that company shall spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy.
- iii. The details of average net profit made during the last three years to be submitted including the amount earmarked for CSR activities (at least 2%) from this project and the details of various activities undertaken along with expenditure, extent of villages covered, benefited population, the proximity to the project area, etc. as a part of EC compliance report (October-March on 1<sup>st</sup> June and April-September on 1<sup>st</sup> December) to the Ministry and its Regional Office.

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**(28.7) 2x660 MW Super-Critical Technology Coal Based Solapur Thermal Power Plant at Villages Fatatewadi & Ahirwadi, South Solapur Taluk, in Solapur District Maharashtra by M/s NTPC Ltd.- reg. amendment in EC. (F.No. J-13012/95/2008-IA.II (T) & Proposal no.IA/MH/THE/105566/2019).**

(28.7.1) Project Proponent has submitted online application on 16.05.2019 for amendment in EC conditions related to CSR expenditure.

(28.7.2) The specific condition No. xxvi of the Environmental Clearance dated 27.12.2010 is as follows:

“Further an amount of Rs.42.0 Crores shall be earmarked as one time capital cost for CSR programme as committed by the project proponent. Subsequently a recurring expenditure of Rs.8.4 Crores per annum till the life of the plant shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within six month with road map for implementation.”

(28.7.3) Committee noted that the Circular dated 1.5.2018 on CSR/CER activities has provided for one time amount in certain percentages based on project cost and whether it is Greenfield or brownfield. W.r.t. the CSR expenditure during operation period, the Section 135 of the Companies Act, 2013 has a provision to spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years. It is also logical that the recurring expenditure on CSR activities should be proportionate to the profits earned by the operations. Project Proponent cannot spend the amount for the welfare of surrounding people, if no profits are not earned by them. As the recurring expenditure on CSR activities had already been covered by the Companies Act, Committee is of the opinion that there should not be any overlapping amounts additionally stipulated by the Ministry. Accordingly, the recurring expenditure on CSR in the ECs should be inline with the Companies Act. Regarding Capital expenditure on CSR/CER, the Ministry had already stipulated the amount to be spent on a case to case basis. Now, Ministry has issued a Circular with minimum expenditure based on certain percentage of project cost.

(28.7.4) The estimated project as per the EC is Rs. 10,508.9 Crores. For the present project since it is greenfield project and the project cost is between Rs.1000-10,000 Crores, accordingly, 0.25% of the project cost would be Rs.26.27 Crores. However, Ministry while granting EC has stipulated the amount of Rs.42.0 Crores which is higher than the new amount.

(28.7.5) Committee after detailed deliberations, **recommended** for following amendments in the Environmental Clearance:

- i. With respect to the Capital Expenditure on CER/CSR activities as one time amount should be in-line with the Ministry's Circular dated 1.5.2018 or the amount stipulated in the EC, whichever is higher. Project Proponent has to submit the revised/latest project cost, calculate the one time CER expenditure based on revised project cost, compare with the amount stipulated in the EC and adopt the highest amount. The details in this regard along with an undertaking to adopt the highest amount shall be submitted within three months.
- ii. With respect to the recurring CSR expenditure, any condition stipulating the recurring amount per annum in the EC may be made redundant. The recurring

amount shall be inline with Section 135 of Companies Act, 2013 which states that company shall spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy.

- iii. Project Proponent has to furnish the details of average net profit made during the last three years, the amount of earmarked for CSR activities (at least 2%) from this project and the details of various activities undertaken along with expenditure, extent of villages covered, benefited population, the proximity to the project area, etc. shall be submitted as part of EC compliance report (October-March on 1<sup>st</sup> June and April-September on 1<sup>st</sup> December) to the Ministry and its Regional Office.

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**(28.8) 3x800 MW (Stage-I) Kudgi Super Thermal Power Plant at Village Kudgi, Basavana Bagevadi Taluk, Bijapur District, Karnataka by M/s NTPC Ltd.-reg. amendment in EC.**

**(F.No. J-13012/06/2009-IA II (T) & Proposal no. IA/KA/THE/105615/2019)**

- (28.8.1) Project Proponent has submitted online application on 16.05.2019 for amendment in EC conditions related to CSR expenditure.

- (28.8.2) The specific condition No. xxxiv of the Environmental Clearance dated 25.01.2012 is as follows:

“An amount of Rs.42.80 Crores shall be earmarked as one time capital cost for CSR programme as committed by the project proponent. Subsequently a recurring expenditure of Rs.10.6 Crores per annum till the life of the plant shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within six month with road map for implementation.”

- (28.8.3) Committee noted that the Circular dated 1.5.2018 on CSR/CER activities has provided for one time amount in certain percentages based on project cost and whether it is Greenfield or brownfield. W.r.t. the CSR expenditure during operation period, the Section 135 of the Companies Act, 2013 has a provision to spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years. It is also logical that the recurring expenditure on CSR activities should be proportionate to the profits earned by the operations. Project Proponent cannot spend the amount for the welfare of surrounding people, if no profits are not earned by them. As the recurring expenditure on CSR activities had already been covered by the Companies Act, Committee is of the opinion that there should not be any overlapping amounts additionally stipulated by the Ministry. Accordingly, the recurring expenditure on CSR in the ECs should be inline with the Companies Act. Regarding Capital expenditure on CSR/CER, the Ministry had already stipulated the amount to be spent on a case to case basis. Now, Ministry has



issued a Circular with minimum expenditure based on certain percentage of project cost.

(28.8.4) The estimated project as per the EC is Rs. 13,205.40 Crores. For the present project since it is greenfield project and the project cost is between Rs.1000-10,000 Crores, accordingly, 0.25% of the project cost would be Rs.33.02 Crores. However, Ministry while granting EC has stipulated the amount of Rs.42.8 Crores which is higher than the new amount.

(28.8.5) Committee after detailed deliberations, **recommended** for following amendments in the Environmental Clearance:

- i. With respect to the Capital Expenditure on CER/CSR activities as one time amount should be in-line with the Ministry's Circular dated 1.5.2018 or the amount stipulated in the EC, whichever is higher. Project Proponent has to submit the revised/latest project cost, calculate the one time CER expenditure based on revised project cost, compare with the amount stipulated in the EC and adopt the highest amount. The details in this regard along with an undertaking to adopt the highest amount shall be submitted within three months.
- ii. With respect to the recurring CSR expenditure, any condition stipulating the recurring amount per annum in the EC may be made redundant. The recurring amount shall be in-line with Section 135 of Companies Act, 2013 which states that company shall spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy.
- iii. The details of average net profit made during the last three years to be submitted including the amount earmarked for CSR activities (at least 2%) from this project and the details of various activities undertaken along with expenditure, extent of villages covered, benefited population, the proximity to the project area, etc. as a part of EC compliance report (October-March on 1<sup>st</sup> June and April-September on 1<sup>st</sup> December) to the Ministry and its Regional Office.

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**(28.9) 2x800 MW (Stage-I) Gadarwara Super Thermal Power Project near Villages Gangai, Umaraiya, Mehrakheda, Chorbarheta, Dongergaon and Kudari, Gadarwara Tehsil, Narsinghpur District, Madhya Pradesh by M/s NTPC Ltd.- reg. amendment in EC.**

**(F.No. J-13012/125/2009-IA.II(T) & Proposal no. IA/MP/THE/105718/2019)**

(28.9.1) Project Proponent has submitted online application on 17.05.2019 for amendment in EC conditions related to CSR expenditure.

(28.9.2) The specific condition No. xxxiv of the Environmental Clearance dated 22.03.2013 is as follows:

“An amount of Rs.45.60 Crores shall be earmarked as one time investment shall be earmarked for activities to be taken up under CSR during construction phase of the project. A detailed CSR Action Plan be furnished to the Ministry within 3

months. Recurring expenditure for CSR thereafter shall be Rs.9.2 Crores per annum till the life of the plant. Social Audit by a reputed University or an Institute shall be carried out annually and details to be submitted to MoEF besides putting it on Company's website.”

(28.9.3) Committee noted that the Circular dated 1.5.2018 on CSR/CER activities has provided for one time amount in certain percentages based on project cost and whether it is Greenfield or brownfield. W.r.t. the CSR expenditure during operation period, the Section 135 of the Companies Act, 2013 has a provision to spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years. It is also logical that the recurring expenditure on CSR activities should be proportionate to the profits earned by the operations. Project Proponent cannot spend the amount for the welfare of surrounding people, if no profits are not earned by them. As the recurring expenditure on CSR activities had already been covered by the Companies Act, Committee is of the opinion that there should not be any overlapping amounts additionally stipulated by the Ministry. Accordingly, the recurring expenditure on CSR in the ECs should be inline with the Companies Act. Regarding Capital expenditure on CSR/CER, the Ministry had already stipulated the amount to be spent on a case to case basis. Now, Ministry has issued a Circular with minimum expenditure based on certain percentage of project cost.

(28.9.4) The estimated project as per the EC is Rs. 11,404.62 Crores. For the present project since it is greenfield project and the project cost is between Rs.1000-10,000 Crores, accordingly, 0.5% of the project cost would be Rs.57.03 Crores. However, Ministry while granting EC has stipulated the amount of Rs.45.60 Crores which is less than the new amount.

(28.9.5) Committee after detailed deliberations, **recommended** for following amendments in the Environmental Clearance:

- i. With respect to the Capital Expenditure on CER/CSR activities as one time amount should be in-line with the Ministry's Circular dated 1.5.2018 or the amount stipulated in the EC, whichever is higher. Project Proponent has to submit the revised/latest project cost, calculate the one time CER expenditure based on revised project cost, compare with the amount stipulated in the EC and adopt the highest amount. The details in this regard along with an undertaking to adopt the highest amount shall be submitted within three months.
- ii. With respect to the recurring CSR expenditure, any condition stipulating the recurring amount per annum in the EC may be made redundant. The recurring amount shall be in-line with Section 135 of Companies Act, 2013 which states that company shall spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy.

- iii. The details of average net profit made during the last three years to be submitted including the amount earmarked for CSR activities (at least 2%) from this project and the details of various activities undertaken along with expenditure, extent of villages covered, benefited population, the proximity to the project area, etc. as a part of EC compliance report (October-March on 1<sup>st</sup> June and April-September on 1<sup>st</sup> December) to the Ministry and its Regional Office.

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**(28.10) 2x660 (Stage-II) Thermal Power Project at Village Mouda, Kumbhari, Lapka, Koradi and Rahli, Taluk Mouda, Dist. Nagpur in Maharashtra by M/s NTPC Ltd.-reg. amendment in EC.**

**(F.No. J-13012/65/2009-IA.II (T) & Proposal no. IA/MH/THE/105652/2019)**

(28.10.1) Project Proponent has submitted online application on 17.05.2019 for amendment in EC for amendment in EC conditions related to CSR expenditure.

(28.10.2) The specific condition No. xxi of the Environmental Clearance dated 30.12.2010 is as follows:

“Further an amount of Rs.27.0 Crores shall be earmarked as one time capital cost for CSR programme as committed by the project proponent investment shall be earmarked for activities to be taken up under CSR during construction phase of the project. A detailed CSR Action Plan be furnished to the Ministry within 3 months. Recurring expenditure for CSR thereafter shall be Rs.9.2 Crores per annum till the life of the plant. Social Audit by a reputed University or an Institute shall be carried out annually and details to be submitted to MoEF besides putting it on Company’s website.”

(28.10.3) Committee noted that the Circular dated 1.5.2018 on CSR/CER activities has provided for one time amount in certain percentages based on project cost and whether it is Greenfield or brownfield. W.r.t. the CSR expenditure during operation period, the Section 135 of the Companies Act, 2013 has a provision to spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years. It is also logical that the recurring expenditure on CSR activities should be proportionate to the profits earned by the operations. Project Proponent cannot spend the amount for the welfare of surrounding people, if no profits are not earned by them. As the recurring expenditure on CSR activities had already been covered by the Companies Act, Committee is of the opinion that there should not be any overlapping amounts additionally stipulated by the Ministry. Accordingly, the recurring expenditure on CSR in the ECs should be inline with the Companies Act. Regarding Capital expenditure on CSR/CER, the Ministry had already stipulated the amount to be spent on a case to case basis. Now, Ministry has issued a Circular with minimum expenditure based on certain percentage of project cost.

(28.10.4) The estimated project as per the EC is Rs. 6,745.29 Crores. For the present project since it is brownfield project and the project cost is between Rs.1000-

10,000 Crores, accordingly, 0.25% of the project cost would be Rs.16.86 Crores. However, Ministry while granting EC has stipulated the amount of Rs.27 Crores which is higher than the new amount.

(28.10.5) Committee after detailed deliberations, **recommended** for following amendments in the Environmental Clearance:

- i. With respect to the Capital Expenditure on CER/CSR activities as one time amount should be in-line with the Ministry's Circular dated 1.5.2018 or the amount stipulated in the EC, whichever is higher. Project Proponent has to submit the revised/latest project cost, calculate the one time CER expenditure based on revised project cost, compare with the amount stipulated in the EC and adopt the highest amount. The details in this regard along with an undertaking to adopt the highest amount shall be submitted within three months.
- ii. With respect to the recurring CSR expenditure, any condition stipulating the recurring amount per annum in the EC may be made redundant. The recurring amount shall be in-line with Section 135 of Companies Act, 2013 which states that company shall spend (in every financial year) at least two per cent of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy.
- iii. The details of average net profit made during the last three years to be submitted including the amount earmarked for CSR activities (at least 2%) from this project and the details of various activities undertaken along with expenditure, extent of villages covered, benefited population, the proximity to the project area, etc. as a part of EC compliance report (October-March on 1<sup>st</sup> June and April-September on 1<sup>st</sup> December) to the Ministry and its Regional Office.

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**(28.11) ANY OTHER ITEM WITH THE PERMISSION OF THE CHAIR.**

**Amendment of Conditions in the Environmental Clearance related to Flyash Utilisation in-line with the Flyash Notification- reg.**

(28.11.1) The Thermal Sector of IA Division has received a representation from HSMD of this Ministry to take appropriate action in respect of following:

- i. MoEF & CC should revisit the conditions stipulated in the existing environmental clearance of Thermal Power Plants for fly ash utilisation and modify them in consonance with the fly ash notification.
- ii. Appropriate conditions need to be incorporated in the environmental clearance for utilisation of fly ash in mines backfilling/stowing.

(28.11.2) The Hon'ble NGT in the matter of Shantanu Sharma vs UoI on 20.11.2018 directed all thermal power plants who failed to utilize 100% flyash up to 31.12.2017 to deposit damages for environmental restoration as below:

Sl. No	Capacity	Cost of damage
1	Thermal Power Plants up to 500 MW	Rs. 1 Crore
2	Thermal Power Plant up to 1000 MW	Rs. 3 Crore
3	Thermal Power Plant beyond 1000 MW	Rs.5 Crores

(28.11.3) Aggrieved by the Order of Hon'ble NGT, various Power Plant operators and Association of Power Producers appealed the NGT Order dated 20.11.2018 before Supreme Court. Accordingly, Hon'ble Supreme Court in Civil Appeal No.47736 of 2019 in the matter of M.P. Power Generating Company Ltd.vs Sandplast (India) Ltd. & ors., NTPC Ltd. Vs Sandplast (India) Ltd., put a stay on the NGT Order on 25.1.2019.

(28.11.4) The Supreme Court also said that NGT had already constituted a committee to finalise an action plan to achieve one hundred per cent utilization of fly ash and for its scientific and environmentally compliant disposal. The Committee was also required to determine the amount of damages to be paid for violation of the requirement to utilize fly ash, and submit the report by 31.3.2019. Supreme Court mentioned that direction for deposit shall not be enforced against the appellant and no coercive steps for non-compliance shall be taken; and an opportunity is to be given for appellants.

(28.11.5) Subsequently, NGT heard the matter again and vide Order dated 12.3.2019 pronounced that the committee had already been constituted by the NGT to determine amount of damages and to issue action plan for achieving 100% utilisation of flyash and its scientific and environmentally sound disposal. Applicant is at liberty to put forward its view point before the Committee within one week. The committee may furnish its report by 31.5.2019. Accordingly, the matter is being dealt by HSMD for the 100% compliance of Flyash notification and utilisation.

**(28.11.6)** Flyash Utilisation amendment Notification vide S.O2804(E) dated 3.11.2009 made following provisions to enable flyash disposal in mine voids, low lying areas with an intention to achieve 100% utilisation by power plants:

- i. No agency shall within a radius of 100 km of coal/lignite based thermal power plant undertake/approve/allow reclamation and compaction of low lying areas with soil; only flyash shall be used for compaction and reclamation.
- ii. No person/agency shall within 50 km from coal or lignite based thermal power plants, undertake or approve stowing of mine without using at least 25% of flyash on weight-to-weight basis, of the total stowing material used. Provided such thermal power stations shall facilitate the availability of required quality and quantity of flyash as may be decided by the expert committee referred in sub-para 10.

- iii. No person/agency shall within 50 km from coal or lignite based thermal power plants, undertake or approve stowing of mine without using at least 25% of flyash on volume to volume basis of the total materials used for external dump of overburden and same percentage in upper benches of backfilling of opencast mines, under the guidance of Director General of Mines Safety (DGMS).
- iv. Ministry shall constitute expert committee comprising representatives from Fly Ash Unit-DST, DGMS, CMPDI, MoEFCC, CIMFR Dhanbad.

(28.11.7) Though the flyash notification enables to use flyash in mixing with external dump of overburden, backfilling or stowing of mine and in low lying areas, the conditions stipulated in the Environmental Clearances proscribe use of ash in agricultural purposes, low lying areas and dumping in mine voids. The conditions stipulated during 2010-2014 and 2014-2018 are as below:

**EC conditions during 2010-14:**

- i. Fly ash shall not be used for agricultural purpose. No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.
- ii. Fly ash utilization shall be as per the Fly ash utilization Notification, 1999 as amended in 2003 and 2009. Fly ash disposal in the mine void shall be only after carrying geo-hydrological study and to prevent leaching in the ground water and heavy metal contamination.
- iii. Hydrogeology of the area shall be reviewed annually from an institute/ organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case and deterioration is observed specific mitigation measures shall be undertaken and reports/ data of water quality monitored regularly and maintained shall be submitted to the Regional Office of the Ministry.
- iv. No ash shall be disposed off in low lying area.
- v. A detailed study on chemical composition of coal used particularly heavy metal and radio-activity contents shall be carried out through a reputed institute and report shall be submitted to Regional Office of the Ministry. Only after ascertaining its radioactive level shall fly ash be utilized for brick manufacturing or supplied to brick manufacturers.

**EC conditions during 2014-18:**

- vi. Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) shall be monitored in the bottom ash. No ash shall be disposed off in low lying area.
- vii. No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.
- viii. A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analysed every two years and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.

(28.11.8) Committee noted that CMPDI and CIMFR Dhanbad have conducted the study of impact of flyash disposal in abandoned mines on groundwater quality and other environmental impacts. These studies indicate that the leachate of heavy metals and other impacts on radio activity are long term which needs continuous monitoring at the disposal site. Further, dumping of 100% flyash is not suitable always as finer particles of ash enters through the geological unconformities through fissures, faults and folds. It is advisable that certain percentage of overburden or soil is mixed along with flyash while disposal. However, this mixing of flyash and overburden poses practical difficulties as elaborate machinery and equipment is required to mix both materials in required proportions.

Further, Indian Agricultural Research Institute has also conducted several studies of application of flyash in agriculture and crops (Effect of flyash incorporation on soil properties and crop productivity). Though the study mentions that crop yields have increased in several cases, it also suggests that the crop's response to flyash addition in agricultural fields needs to be evaluated on long term basis for sustained and stabilized crop's yield and environmental impact associated with its addition. The study also suggested that the fate of heavy metals in soil-plant-water in continuum coupled with ash addition needs to be thoroughly investigated.

(28.11.9) There are several issues needs to be addressed during flyash disposal in the mine voids such as mode of disposal whether the ash is to be separated by a soil or over burden layer during disposal, whether it is sole disposal of ash or mixing with over burden/soil, stability and safety of the bund, sourcing of water for making ash slurry, whether the use of sea water is environment friendly or not,

the management supernatant water, treatment and disposal of wastewater, the leachate of heavy metals and its impact on groundwater, need for lining of the mine void with soil layer, etc.

(28.11.10) In absence of guidelines for disposal of flyash in safe and environment friendly manner, the EAC has initially recommended for stipulating conditions in the ECs for not using flyash in mine voids, low lying areas and agricultural areas. However, the EAC has been considering the case to case basis and recommending for disposal of ash mines based on the studies conducted on leaching of heavy metals, radio-tracer studies for transportation of radio-active materials, impact on groundwater in the surrounding villages.

(28.11.11) Committee noted that the use of flyash in agriculture or application to the soil also needs to be studied for stipulation of recommended quantities, otherwise the excessive application of flyash to the soil would give detrimental results. Committee has been informed that the guidelines for disposal of ash in abandoned mines are under preparation by the CPCB. **Accordingly, Committee recommended that these conditions may be suitably amended in line with the Flyash Notifications provided there are suitable guidelines made available to Project Proponents for safe disposal of ash.**

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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.
- xxxii) 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.
- xxxiii) 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.
- xxxiiii) 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.
- xxxv) 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.
- xxxvi) 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.
- xxxvii) 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.
- xxxviii) Occupational health and safety measures for the workers including identification of work related health hazards shall be formulated. The company

shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in non-conductive environment shall be carried out and precautionary measures like use of personal equipments etc. shall be provided. Review of impact of various health measures undertaken at intervals of two to three years shall be conducted with an excellent follow up plan of action wherever required.

- 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.

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

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

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

**M. Sea Water Intake:**

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

**N. Effluent Release:**

1. At the effluent release point, maximum temperature of the discharge water shall not be more than 5°C and salinity shall not exceed 50 ppt with respect to that of the ambient seawater.
2. Use of antifouling agents like chlorine / hypochlorite, shall be carefully controlled. The chlorine concentration shall not exceed 0.2 ppm at the effluent release point.
3. The effluent when released at the selected location shall attain sufficient dilution so that near ambient water quality (particularly temperature and salinity) is attained within 500 m from the release location, at low tide.
4. The location of the diffuser shall be marked with a solar lighted buoy to avoid accidents.
5. The site selected based on mathematical modeling shall ensure absence of recirculation of the effluent plume in the seawater intake area under all tidal conditions.
6. The effluent shall be released through a properly designed multiport diffuser above the seabed to facilitate its efficient initial mixing with the receiving seawater.
7. Efficacy of the diffuser shall be ascertained at least once in 2 years through scientific studies and corrective actions such as cleaning of the diffuser from marine growth, removal of silt deposits, etc. shall be taken up, if warranted.
8. Continuous online monitoring system for Temperature and Salinity shall be installed to monitor the quality of effluent.

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

1. The pipeline shall be buried below the seabed at a depth to ensure its stability under rough sea conditions particularly during cyclone / tsunami. The depth of burial will depend on the seafloor strata but normally the top of the pipeline shall be at least 1 m below the bed level. In the surf and intertidal zones, the pipeline shall be buried below the maximum scour level.
2. In case of open channel, the channel shall be constructed as per the recommendations of State Coastal Zone Management Authority (SCZMA).

3. If the substratum is rocky the pipeline may be anchored to the rock provided the geology of the area satisfactorily supports the structure which shall be ascertained through geo-technical investigations.
4. Exposed pipeline section and riser shall be protected by armour stone from waves, boats anchoring, fishing activities etc.
5. The location of the riser & diffuser shall be marked with a solar lighted buoy to avoid accidents from boats.
6. Marine / Sea water quality shall be monitored at effluent release location at the center. Parameters to be monitored shall be as follows:
  - a. *Physico-chemical*: Temperature, Salinity, pH and Dissolved Oxygen.
  - b. *Biological*: Primary Productivity, Phytoplankton (Chlorophyll a, Phaeophytin, Population, Species), Zooplankton (Biomass, Population, Species) and Benthos (Biomass, Population, Species).
7. In case of Coastal Power Plants, the Mangrove plantation shall be taken up in an area of .....ha, along the coast/ on the banks of ..... Estuary.

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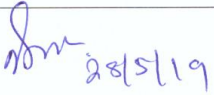

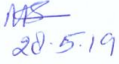
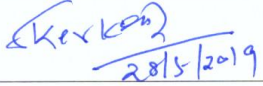
## Attendance List

### LIST OF MEMBERS (Attendance Sheet)

### 28<sup>th</sup> EXPERT APPRAISAL COMMITTEE MEETING (Thermal)

DATE & TIME : 28<sup>th</sup> May 2019, 10:00 AM

VENUE : Narmada Hall, Jal Wing, Ground Floor, Indira Paryavaran Bhawan, New Delhi

Sr.No.	Name of Member	Signature
1.	Dr. Navin Chandra Chairman	 28/05/19
2.	Shri Suramya D. Vora, IFS (Retd.) Member	Abs
3.	Dr. Narmada Prasad Shukla Member	 28.05.19
4.	Sh. N. Mohan Karnat, IFS Member	Abs
5.	Dr. Sharachchandra Lele Member	Abs
6.	Sh. N.S. Mondal, CEA Member	 28/5/19
7.	Dr. R.K. Giri, IMD Member	Abs
8.	Dr. S.K. Paliwal, CPCB Member	 28/5/2019
9.	Prof. S.K. Gupta (ISM/ IIT Dhanbad) Member	Abs
10.	Dr. Jai Krishna Pandey Member	Abs
11.	Dr. Manjari Srivastava Member	 28.5.19
12.	Dr. Gururaj P Kundargi Member	Abs
13.	Dr. S. Kerketta Member Secretary, MoEFCC	 28/5/2019

## Approval of the Chairman

6/17/2019

[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 28th MoM of EAC (Thermal) - reg.**  
To: Dr S Kerketta <s.kerketta66@gov.in>

Date: 06/15/19 11:15 AM  
From: navin chandra <navinchandrarrl@yahoo.com>  
Reply-To: navin chandra <navinchandrarrl@yahoo.com>

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15/06/2019

Dear Dr. kerketta,

Tanks for sending the final draft of the Minutes of the EAC Thermal meeting held in May, 2019. The minutes are in order and may be uploaded on the website of MoEFCC.

Regards,

(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 Friday, 14 June, 2019, 7:33:30 pm IST, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Sir,

Please find the attachment for kind approval please.

--  
regards,

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

**AGENDA OF 28<sup>th</sup> MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON THERMAL POWER PROJECTS**

**DATE : 28 May, 2019**

**TIME : 10.30 A.M. ONWARDS**

**VENUE : NARMADA MEETING HALL, GROUND FLOOR, JAL WING, IPB, JORBAGH ROAD, NEW DELHI-110003.**

<b>ITEM</b>	
<b>Item No. 28.0</b>	<b>CONFIRMATION OF MINUTES OF 27<sup>th</sup> EAC (THERMAL) MEETING</b>
<b>Item No.</b>	<b>CONSIDERATION OF PROJECTS</b>
28.1	Expansion by addition of 2x660 MW Stage-V (Unit-7 & 8) Coal based Thermal Power Plant at Village Thukrana, Suratgarh Tehsil, Sri Ganganagar Dist., Rajasthan by <b>M/s Rajasthan Rajya Vidyut Utpadan Nigam Ltd.- reg. extension of validity of Environmental Clearance.</b> F.No. J-13012/14/2009-IA.II(T) & Proposal No. IA/RJ/THE/10394/2009.
28.2	2 x 660 MW Super Critical Thermal Power Plant at Village Koradi, Tahsil-Kamptee, District Nagpur, Maharashtra by <b>M/s Maharashtra State Power Generation Company Limited (MAHAGENCO)-reg. ToR.</b> F.No.J-13012/07/2019-IA.I(T) & Online no. IA/MH/THE/102533/2019.
28.3	4x270 MW (1080 MW) Coal based Bhadradri Thermal Power Station (BTPS) at Villages Ramanujavaram, Eddulabayyaram & Seetharampuram, Mandals Manuguru & Pinapaka, District Bhadradri Kothagudem (Erstwhile Khammam dist.), Telangana by <b>M/s Telangana State Power Generation Corporation (TSGENCO) Ltd. - reg. permission for coal transportation by road.</b> F.No. J-13012/02/2015-IA.I (T) & Proposal no. IA/TG/THE/105598/2019
28.4	55 MW Municipal Solid Waste Power Project (Using Cold Plasma Technology to convert Green Power, Purified Water and Fuel at East Delhi Municipal Corporation Opp. Gagan Theatre, Wazirabad Road, Mandoli Extension, Village Mandoli, Delhi by <b>M/s A.G. Dauters Waste Processing Private Limited. - reg. reconsideration of ToR.</b> F.No. J-13012/13/2018-IA.I (T) & Proposal no. IA/DL/THE/84113/2018
28.5	2x660 MW Super Critical Coal based Meja Thermal Power Plant near Kohadar, Bhagdeva & Mai Kalam Villages, Taluk Meja, District Allahabad, Uttar Pradesh by <b>M/s Meja Urja Nigam Pvt. Ltd.- reg. amendment in EC.</b> F.No. J-13012/03/2008-IA.II(T) & Proposal no. IA/UP/THE/104912/2019.
28.6	2x800 MW (Stage-I) Darlipali Supercritical Coal Based Thermal Power Plant at Village Darlipali, Lephripara Taluk, Sundergarh District, Odisha by <b>M/s NTPC Ltd.- reg. amendment in EC.</b> F.No. J-13012/65/2008-IA-II(T) & Proposal no. IA/OR/THE/105399/2019.
28.7	2x660 MW Super-Critical Technology Coal Based Solapur Thermal Power Plant at Villages Fatatewadi & Ahirwadi, South Solapur Taluk, in Solapur District Maharashtra by <b>M/s NTPC Ltd.- reg. amendment in EC.</b> F.No. J-13012/95/2008-IA.II (T) & Proposal no. IA/MH/THE/105566/2019.



28.8	3x800 MW (Stage-I) Kudgi Super Thermal Power Plant at Village Kudgi, Basavana Bagevadi Taluk, Bijapur District, Karnataka by <b>M/s NTPC Ltd.-reg. amendment in EC.</b> F.No. J-13012/06/2009-IA II (T) & Proposal no. IA/KA/THE/105615/2019.
28.9	2x800 MW (Stage-I) Gadarwara Super Thermal Power Project near Villages Gangai, Umaraiya, Mehrakheda, Chorbarheta, Dongergaon and Kudari, Gadarwara Tehsil, Narsinghpur District, Madhya Pradesh by <b>M/s NTPC Ltd.-reg. amendment in EC.</b> F.No. J-13012/125/2009-IA.II(T) & Proposal no. IA/MP/THE/105718/2019.
28.10	2x660 (Stage-II) Mouda Thermal Power Project by <b>M/s NTPC Ltd.-reg. amendment in EC.</b> F.No. J-13012/65/2009-IA.II (T) & Proposal no. IA/MH/THE/105652/2019.
28.11	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.