

MINUTES OF THE 4th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS HELD ON 17th NOVEMBER, 2020

The 4th Meeting of the re-constituted EAC (Thermal Power) organised by the Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi was held on 17th November, 2020 through video conference under the Chairmanship of Shri Gururaj P. Kundargi. The list of Members present in the meeting is at **Annexure A**.

Item No.4.0: CONFIRMATION OF THE MINUTES OF THE 3rd EAC MEETING

The Minutes of the 3rd EAC (Thermal Power) meeting held on 24.08.2020 were confirmed in the meeting.

(4.1) 2x800 MW Ennore SEZ TPP at Vayalur Village, Ambattur Taluk, District – Tiruvallur, Tamil Nadu by M/s TANGEDCO – regarding extension of validity of EC.

(F.No. J-13012/36/2010-IA II (T) & Online No. IA/TN/THE/173531/2020)

- (4.1.1) Project Proponent submitted online application on 16.9.2020 for extension of Environmental Clearance dated 7.1.2014 which is valid for 07 years (till 6.1.2021).
- (4.1.2) Project Proponent in the presentation *inter-alia*, submitted the following information:
- i. The EC for establishing 2x800 MW was granted by the Ministry on 7.1.2014. Public hearing for the project was conducted on 23.2.2012. The configuration has been changed to 2x660 MW vide Ministry's amendment letter dated 14.8.2018.
 - ii. CRZ Clearance for coal pipe conveyor, cooling water and discharge pipelines under CRZ Notification, 2011, was granted by the Ministry on 1.1.2014 based on the TNCZMA recommendations dated 4.10.2011.
 - iii. The current time schedule for the completion of the power project is 2022-23. The works are progressing in a fast track basis to commission the project within the time schedule. Physical progress of around 45% and financial progress of 55% has been achieved.
 - iv. Considering slippages due to cyclones and Covid-19 lock down and other force majeure, commissioning of the project is delayed. Progress achieved so far for main plant is around 45%.
 - v. It is estimated that extension of validity of EC for 3 more years is essential to complete the project works including provision of FGD for compliance of latest environmental norms.
 - vi. It is expected that all the works including pollution control measures require another 3 years to complete the project. The unit-1 and unit-2 are expected to commission by May 2022 and August 2022 including completion of FGD.

- vii. Tender for installation of FGD is in process and it is expected that the work will be awarded for commencement by April 2021 and scheduled to be completed by August 2023.
- viii. Environmental Clearance has been issued by MoEFCC for the project based on the submission that the existing ash dyke of NCTPS will be utilized for the bottom ash disposal, since, the captioned project itself is being developed over the abandoned primary ash pond of NCTPS.
- ix. TANGEDCO has proposed augmentation of volume of the existing NCTPS Ash Dyke by raising 6 m under technical guidance of IIT Madras. After the above augmentation, the carrying capacity of Ash Dyke will increase to around 78,30,000 m³. The above work will be completed along with the completion of the captioned power project.
- x. The proposed augmentation of the ash pond will cater to the bottom ash disposal. Further bottom ash is being evacuated by Govt. departments and other agencies for filling purposes and for brick manufacturing.
- xi. Coordinates of ash pond are as below:

Point	Latitude	Longitude
A	13°17'5.63"N	80°18'45.43"E
B	13°15'51.87"N	80°18'31.97"E
C	13°15'54.08"N	80°18'24.54"E
D	13°17'12.30"N	80°18'6.42"E

- xii. TANGEDCO applied to Tamil Nadu Coastal Zone Management Authority on 08.10.2020 to issue recommendation for extension of CRZ Clearance 1.1.2014, separately for 3 years.
- xiii. Area of Green Belt proposed to be developed is 130 Acres. Around 10 Acres are already developed with suitable type plantation. It is submitted that around 40 Acres per Year will be developed as Green belt in the next 3 years within power plant before commissioning of the power plant. The selection of species for greenbelt will be based on the recommendations of District Forest Officer, Thiruvallur District.

(4.1.3) Committee noted that out of project cost of Rs. 9799 crores, it has been informed that 55% of the amount has been spent for project activities. Further, 45% of physical activities have been completed so far. W.r.t. ash pond, it was informed that ash pond of operational units located nearby shall be used for the proposed project as well for disposal of unutilised ash. Further, Environmental Clearance stipulated a condition to install FGD considering the pollution generated in the area due to several power plants in Ennore area. Proponent mentioned that tender is being finalised and expected to commence work by April 2021 and completed by August 2023. However, as per CEA estimation, it will take about 30 months for installation from the date of award/commencement of work. Further, w.r.t. CRZ clearance, a separate CRZ

clearance was issued by the Ministry after examining the State CZMA recommendations and appraisal by the EAC-CRZ. As the fresh State CZMA recommendations are yet to issued, the aspect of the CRZ may be dealt separately by CRZ Division.

- (4.1.4) Committee after detailed deliberations recommended for extension of Environmental Clearance granted on dated 7.1.2014 for further period of 3 years subject to following additional conditions:
- i. Flue-gas Desulphurisation (FGD) shall be installed and the progress (physical and financial) shall be submitted as part of compliance report.
 - ii. The ash pond (about 353 acres) augmentation by increasing the dyke height by 6 m to accommodate additional & unutilised ash generated from 2x660 MW Ennore SEZ TPP shall have all adequate environmental and safety measures such as HDPE liner, high concentration slurry disposal system, ash water recycling system, dyke stability measures, and minimum distance of 500 m from the water bodies.
 - iii. The safety and structural stability of the ash pond is to be ascertained once in three years by reputed agency which has expertise in the field of geo-technical aspects, to avoid breaching as Ennore creek is less than 1 km from the said ash pond.
 - iv. Greenbelt consisting of three tiers of plantation of native species of atleast 20 m width around the periphery of the ash pond (353 acres) shall be developed.

**(4.2) Proposed 14.5 MW Coal based Captive Co-Generation Power Plant within the existing facility at Village Puthukkadu, Kokkarakondi, Pirivu, Puthupeerkadavu, Taluk Sathyamangalam, District Erode, Tamil Nadu by M/s Sri Andal Paper Mills Pvt. Ltd. – Regarding Exemption of Public Hearing
(F.No. J-13012/02/2020-IA.I(T) & P. No. IA/TN/IND/170382/2020)**

- (4.2.1) Project Proponent applied on 30.8.2020 for seeking exemption of Public Hearing which has been stipulated in the Terms of Reference (ToR) issued vide Ministry's letter dated 13.4.2020 for installing 14.5 MW Captive Power Plant.
- (4.2.2) Project Proponent did not attend the meeting. The present request is to exempt from the public hearing as the project capacity is small. The Committee noted that there is no provision to exempt public hearing as per the EIA Notification. Further, Committee checked the TNPCB website and it was found that the public hearing in this case has been scheduled by TNPCB on 15.12.2020.
- (4.2.3) Accordingly, Committee after detailed deliberations, did not accept the request of public hearing exemption.

(4.3) 3x800 MW NLC Talabira Thermal Power Project (NTTPP) at Kumbhari & Tareikela Villages in Jharsuguda, Odisha by M/s NLC India Ltd. – Reconsideration of grant of EC (F.No. J-13012/14/2017-IA.I(T) & Online No. IA/OR/THE/67938/2017)

(4.3.1) Project Proponent submitted online application on 19.2.2020 for grant of Environmental Clearance for establishing 3x800 MW Thermal Power Project in Jharsuguda District, Odisha.

(4.3.2) The proposal was earlier considered by the EAC in its meetings held on 10.4.2020 and 28.7.2020. EAC in its meeting held on 28.7.2020 sought the clarification on shifting of ash pond as it is close to Bhedan river and a nalla is passing through the proposed ash pond area, considering option to backfilling with ash in Talabira mines to avoid ash pond, availability of water for the plant including FGD, proposal to increase greenbelt area from 17% to 40% as the location is in Critically polluted area, NOC from DFO Jharsuguda, Mercury concentrations in the Coal, SIA for Sambalpur District, etc.

(4.3.3) Project Proponent vide letter dated 19.6.2020 submitted the revised EIA report. Proponent along with Environment Consultants M/s ABC Techno Labs India Pvt. Ltd. made the presentation and inter-alia furnished the following information:

- i. Natural drain (nallah) passing through proposed ash dyke area would not be diverted and Northern side of the proposed ash dyke area will not be acquired so as to avoid the habited area on the northern side of nallah. The dyke area thus available on the Southern side would be reduced from originally envisaged 340 acres to about 175 acres. The edge of the ash dyke area would be maintained at 500 meters away from the Bedhan river.
- ii. The design of ash dyke and bund along Bedhan river shall be carried out by the Project Consultant/ EPC contractor. In addition, a reputed institute like IIT/ NIT would be engaged for vetting of designs and periodic checking during critical stages of construction.
- iii. A large mine void would likely be available for Mine void filling by the time the thermal power project starts commercial operation.
- iv. The ash will be transported/disposed to Mine Void/Emergency ash dyke through combined (Bottom ash & Fly ash) High concentration slurry disposal system (HCSD) through pipe lines. Around 20% ash will be utilized for filling up the low-lying areas, brick manufacturing, supply to cement manufacturers, etc and the balance 80% ash will be utilized for the mine void filling. Mining operations have already commenced from April 2020 and sufficient mine void will be available from 2025 onwards, which will meet the requirement of Unit 1 commissioning in the year 2025, meeting the Ash utilization guidelines of MoEFCC.
- v. Bottom ash and fly ash will be disposed-off into the identified emergency ash dyke area (175 acres) till such time, nearby mine void is made available for ash disposal. HCSD system would be used for combined slurry (Bottom and Fly Ash) for mine void filling/ disposal into ash dyke area during initial period and during emergency. On completion of required

studies/investigations, requisite clearance shall be obtained from MoEFCC and thereafter ash will be disposed-off into the mine void created after removal of coal in Talabira mines.

- vi. As per the area drainage study report furnished by NIH Roorkee, the embankment of the Bhedan river has to be strengthened along with slope stabilization. The HFL of the Bedhan River at the existing Highway Bridge location is RL 200.9 M. As formation of the embankment Bund is being executed on the banks of the Bhedan river, which is +1m above the HFL limits, water from the Bhedan river will not overflow outside the river in case of flooding. Hence, the Ash dyke will not be affected due to High Flood Level in the Bhedan river.
- vii. In line with the above, the bund formation is envisaged with a base width of the bund as 20 M as indicated at the TOR stage. In addition to that bund shall also be provided on the other bank of the river to safeguard the Ash disposal area. The height of the river bund will be minimum RL 202 M.
- viii. Ash dyke Bund formation will be followed as per the good Engineering practice following all the safety precautions laid down in the IS Code, with introduction of filter media inside the bund, edge protection by way of Rock toe, provision of toe drains, inside lining by HDPE film to avoid seepage of water inside the bund, etc.
- ix. Action plan for achieving 100% Ash utilization, meeting the MOEFCC norms is prepared. The total ash generation from the project considering 40% ash content shall be 4.55 MTPA (Fly ash - 3.64 MTPA and Bottom Ash - 0.91 MTPA). There is large scope for Ash utilization in various fields within 100 kms distance from the proposed project site.
- x. The fly ash generated will be collected and stored in fly ash silos. Pneumatic conveying system (either vacuum system or pressure system) will be employed for conveying of fly ash from the electrostatic precipitator hoppers in dry form. This dry ash will be taken to buffer hoppers in each unit. The dry ash buffer hoppers will be located adjacent to the ESP. Dry ash from buffer hoppers will be transported either to HCSD ash silos or to main storage silos. The fly ash silos shall be located near plant boundary for issuance in Ash Bulkers/ dumpers to user industries (brick/cement manufacturers).
- xi. Brick making plant of 50,000 or 100,000 brick per day capacity shall be installed within the project area.
- xii. Efforts shall be made to tie up with cement plant manufacturers to set up cement plant near the project site with commitment of ash off take from the Talabira project.
- xiii. Organizations likely to take Fly Ash from our project are a) Dalmia Cement, Rajgangpur :F.A Consumption ~ 1.5 Lakh TPA b) Aditya Birla Cement, Jharsugada- F.A. Consumption ~ 1.2775 -1.460 TPA c) Shiva Cement, Sambalpur - Daily requirement (3500 to 4000 TPA).
- xiv. Based on the data from recent 800 MW units, the incremental concentrations were reworked with revised parameters. The incremental concentrations from the stack emissions were now predicted as 1.33 $\mu\text{g}/\text{m}^3$, 4.915 $\mu\text{g}/\text{m}^3$ and 4.915 $\mu\text{g}/\text{m}^3$ for PM, SO₂ and NO_x concentrations, respectively. All the critical pollutants are well within the prescribed NAAQS.

- xv. The State Govt. has accorded approval for 90 cusecs of water from Hirakud reservoir under industrial quota. During 40th SPMG meeting, M/s IPICOL conveyed the availability of water for NTTTP as follows:
- a. 38.44 cusec industrial quota was available with DoWR.
 - b. The allocation of M/s NTPC Darlipali has been reduced from 95 cusecs to 55 cusecs by the SLSWCA.
 - c. M/s Ind Barath Energy Ltd. has applied for reduction of its consumption from 42 cusecs to 28 cusecs.
 - d. Thus, net available water in the Hirakud Reservoir for industrial use comes to 92.44 cusecs out of which 90 cusecs can be allocated to M/s NLC India Ltd.
- xvi. As advised by EAC, the greenbelt requirement shall be reworked @ 40% of the project area including main plant area, ash dyke, corridors, and water reservoir. Additional land for developing green belt will be acquired in between 250 meter line and the river bank if required.
- xvii. NOC from Principal Chief Conservator of Forests (PCCF) and Chief Wildlife Warden, Jharsuguda, Odisha has been granted on 13/10/2020, wherein it is stated that the establishment of Thermal Power plant may be considered subject to site specific conservation plan funded by user agency for the protection of Schedule-I species present in the project area such as wild boar, sloth bear, barking deer, rabbit, jackal, jungle cat, pythons.
- xviii. Wild life conservation plan" will be formulated as per the guidelines and directive of wild life authorities (CWW/PCCF, Govt. of Odisha) and will be implemented through funding by NLCIL. A copy of the wildlife conservation plan will be submitted to MOEFCC in due course
- xix. The Mercury content in different coal samples has been analysed and is in the range of 0.1-0.96 mg/kg. The total quantity of Mercury generated from coal burning is in the range of 5.98-29 kg/day. The average mercury removal efficiencies of the ESP and ESP + Wet FGD systems are 24% and 73%, respectively. The Mercury emitted to the atmosphere through stack was in the range of 19% -72%, which was dominated by HgO. Considering the worst-case scenario of release of 72% Mercury into the atmosphere, the quantity of 4.65 kg/day (HgO) is anticipated to be released into the atmosphere. The corresponding volumetric concentrations are 0.019 mg/Nm³ which is below the emission standard of 0.03 mg/Nm³.
- xx. As the district border lines pass in between main plant and ash dyke, skill development suggested from SIA conducted for Main plant (falling in Jharsguda District) is likely to suit for Ash dyke area (falling in Sambalpur District) also. SIA study for Sambalpur district which was earlier assigned to an agency by the State Nodal Authority (IDCO), could not be undertaken by that Agency due to certain internal issues. State Nodal Authority is presently in the process in awarding the SIA study work to another agency. The amount of about Rs. 21 Lakhs has already been deposited with IDCO for conducting SIA. **The quantum of land to be acquired in Sambalpur Dist. for Ash dyke is now reduced to around 175 acres** and will be required only at a later date as compared to the plant area. The SIA would be completed and SIA Public Hearing shall be held before proceeding further in acquisition as per LARR Act. The SIA report shall be submitted in due

course. However, preliminary SIA study as per the requirement of EIA guidelines and specific to Thelkoloi village in respect of Demographic Structure, Educational Structure, Occupational Pattern, Village Amenities etc. has been conducted by the EIA consultant.

- xxi. Based on the SIA, the Rehabilitation and Periphery Development Advisory Committee (RPDAC), Govt. of Odisha will recommend the R&R package including welfare activities for displaced and affected families due to land acquisition for the project. The recommendations will be implemented.
- xxii. The village which is falling in the ash pond area is Thelkoloi village which has total population of 3684 with 1039 families. Due to land acquisition for ash pond of 175 acres, few families will be affected. As per the recommendations of RPDAC, the necessary R&R plan will be executed in consultation with the State Govt.
- xxiii. Regarding Skill development, it is proposed that the Skill development initiatives identified in SIA report for Main Plant area (Jharsuguda Distt.) will be extended to Ash Dyke area in Sambalpur Distt also. Any specific/ additional suggestions for Sambalpur Distt. would be incorporated as per discussions in RPDAC meetings.
- xxiv. High carbon sequestration trees such as Sal, Peepal, Teak, Poplar, etc., shall be planted in as a part of Green belt development program of Talabira Thermal Power Plant along with native species of Odisha such as fig, Vengai (Pterocarpus marsupium), Lagerstroemia spp., Red cotton tree (Bombax ceiba), Jamun (Eugenia jambolana), Ficus varieties etc.
- xxv. Expected average Gypsum generation for three units considering 85% PLF is 0.33 MTPA. Gypsum storage for the plant is envisaged as covered storage with PCC flooring. Gypsum storage is envisaged for 7 days. Gypsum produced in the plant will be transported through trucks for utilization in the nearby Cement Industries, Plaster of Paris and Gypsum board Industries, etc.

(4.3.4) Committee noted that the ash pond proposed close to Bhedan river has now been reduced to 175 acres with minimum distance of 500 m from the river bank. Further, the ash pond should be away from HFL. As per the recommendations of NIH Roorkee, the strengthening measures for the river bank as well as ash dyke needs to be implemented to avoid any breach. Further, Proponent agreed to dispose ash in the nearby Talabira mine through HCSD within 5 years. As an emergency, ash pond of 175 acres may be used. As per the Chief Wildlife Warden recommendations, Conservation plan is to be prepared as Schedule-1 species are present in the study area.

(4.3.4) The Committee after detailed deliberations, recommended for grant of Environmental Clearance for establishing **3x800 MW NLC Talabira Thermal Power Project, with the following conditions for the compliance, in addition to the standard conditions (Annexure B) stipulated for thermal power plants:**

- i. Ash pond of 175 acres shall be used only for emergency disposal. The ash pond shall have all safety and environmental measures such as HDPE liner, High concentration slurry disposal system, ash water recycling system, dyke stability

- measures, minimum distance of 500 m from River Bhedan and the ash pond area should be out of the area to be affected by HFL.
- ii. The safety and structural stability of the ash pond is to be ascertained once in three years by reputed agency which has expertise in the field of geo-technical aspects.
 - iii. Existing nalla on Northern side of ash pond (175 acres) shall not be disturbed and adequate bund strengthening measures shall be implemented to avoid discharge of ash into the nallah.
 - iv. As committed, the disposal of ash in Talabira mines through HCSD system shall be implemented within 3 years from the start of operations of first unit.
 - v. The 100% ash utilisation shall be achieved as per the Fly ash Notification (as amended from time to time).
 - vi. As per the recommendations of the Chief Wildlife Warden, the Wildlife Conservation Plan is to be prepared at the cost of user agency and vetted by the Chief Wildlife Warden for protection of Schedule-I species (wild boar, sloth bear, barking deer, rabbit, jackal, jungle cat, python) in the study area. The progress of its implementation is to be submitted.
 - vii. As committed, a total of Rs. 40.18 Crores is to be allocated to fulfill the commitments made during public hearing for uplifting the socio-economic status of the project affected people and inhabitants of the surrounding villages. Certain percentage is also to be earmarked for the socio-economic activities for the affected villages in Sambalpur Dist. due to the ash pond.
 - viii. As proposed, the embankment Bund on the banks of the Bhedan river is to be strengthened, which is +1m above the HFL Limits, so as to prevent flooding. The bund formation shall be developed with a base width of 20 m. In addition, the bund shall also be provided on the other bank of the river to safeguard the Ash disposal area. The height of the river bund shall be minimum RL 202 M.
 - ix. As per the recommendations of Rehabilitation and Periphery Development Advisory Committee (RPDAC), Govt. of Odisha, the R&R package shall be implemented for project displaced and affected families due to land acquisition for the project. The implantation progress shall be submitted.
 - x. As proposed Wet FGD shall be installed to control SO₂ emissions. ESP and De-NOX control measures shall be installed to meet the emission norms. As proposed One twin flue stack of 180 m and one single flue stack of height 150 m shall be established for adequate dispersion of pollutants.
 - xi. After reducing the ash pond area from 340 acres to 175 acres, the total project area is about 1282 acres (1447 acres-165 acres). The proponent had earlier proposed for greenbelt development in an area of 252 acres. In line with the Ministry's OM dated 31.10.2019, greenbelt shall be developed in an area of 40% of total project area instead of 33% as the project is located near Ib valley critically polluted area. As proposed, the additional area is to be acquired for meeting target of 40% greenbelt of total project area.
 - xii. High carbon sequestration trees shall be planted as a part of Green belt development along with native species such as fig, Vengai (*Pterocarpus marsupium*), Lagerstroemia spp., Red cotton tree (*Bombax ceiba*), Jamun (*Eugenia jambolana*), Ficus varieties etc.

- xiii. Greenhouse gas emissions and Mercury balance accounting is to be conducted once in three years. This is in addition to Mercury emission monitoring as per the emission standards and monitoring protocol.
- xiv. The progress (physical and financial) of construction till its commissioning shall be submitted to concerned Regional Office.
- xv. During operations, the details regarding quantity of coal consumption, power generation, ash (fly and bottom) generation & utilisation, volume availability of ash pond, emissions and gypsum handling shall be submitted to concerned Regional Office as part of the compliance report.

The meeting concluded with the vote of thanks by the Member Secretary.

Annexure - A

Attendance List

Name & Address	Role	Attendance
1. Shri Gururaj P. Kundargi	Chairman	P
2. Dr. N.P Shukla	Member	P
3. Shri Suramya Vora	Member	P
4. Dr Santosh Kumar	Member	P
5. Dr. Umesh Jagannathrao Kahalekar	Member	P
6. Shri K.B. Biswas	Member	P
7. Dr. Nandini. N	Member	P
8. Dr. Unmesh Patnaik	Member	P
9. Shri Prasant Kumar Mohapatra	Member	P
10. Dr. Nazimuddin/Dr. S.K. Paliwal	Member (Rep. of CPCB)	A
11. Shri M.P Singh	Member (Rep. of CEA)	P
12. Professor S S Rai	Member Rep. of IIT/ISM Dhanbad	P
13. Dr. R.K. Giri	Member Rep. of IMD	P
14. Dr. S. Kerketta	Member Secretary	P

Standard EC Conditions for Thermal Power Sector:

A. Statutory compliance:

1. Emission Standards for Thermal Power Plants as per Ministry's Notification S.O. 3305(E) dated 7.12.2015, G.S.R.593(E) dated 28.6.2018 and as amended from time to time shall be complied.
2. Part C of Schedule II of Municipal Solid Wastes Rules, 2016 dated 08.04.2016 as amended from time to time shall be complied for power plants based on Municipal Solid Waste.
3. MoEFCC 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. MoEFCC 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 m³/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 SO₂ emissions standard of 100 mg/Nm³.
2. Selective Catalytic Reduction (SCR) system or the Selective Non-Catalytic Reduction (SNCR) system or Low NO_x Burners with Over Fire Air (OFA) system shall be installed to achieve NO_x emission standard of 100 mg/Nm³.
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/Nm³.
4. Stacks of prescribed height ____m shall be provided with continuous online monitoring instruments for SO_x, NO_x 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 PM₁₀, PM_{2.5}, SO₂, NO_x 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 m³/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 ofKLD 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 ofKLD 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 ofKLD 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 4th year, 100% fly ash utilization should be ensured. Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry. Mercury and other heavy metals (As, Hg, Cr, Pb, etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. Fly ash 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 (MoEFCC) 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 (PM₁₀& PM_{2.5} in case of ambient AAQ), SO₂, NO_x (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 MoEFCC, 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 seawater in terms of quantity and quality.
2. The withdrawal of seawater shall be preferably through a pipeline with a riser equipped with a velocity cap arrangement and bar screen to arrest the impingement of large marine organisms.
3. In all tide conditions (particularly at spring low tides) the riser head must be flooded with the required submergence of seawater above its top.

N. Effluent Release:

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

Approval of the Chairman

From: gpkundargi@gmail.com
To: "Dr S Kerketta" <s.kerketta66@gov.in>
Sent: Wednesday, December 2, 2020 4:34:19 PM
Subject: Re: Revised Draft MoM of 4th EAC of Thermal.

Dear Dr Kerketta Saheb

Draft minutes are in order & approved for further needful.

Thank you

G P Kundargi

On Wed, 2 Dec, 2020, 4:29 pm Dr S Kerketta, <s.kerketta66@gov.in> wrote:

Dear sir,

Changes incorporated as discussed. For approval please.

regards,

From: "Dr S Kerketta" <s.kerketta66@gov.in>
To: "G.P. Kundargi" <gpkundargi@gmail.com>
Cc: "Dr. S Kerketta" <suna1466@rediffmail.com>
Sent: Wednesday, December 2, 2020 3:53:50 PM
Subject: Revised Draft MoM of 4th EAC of Thermal.

Dear sir,

Changes incorporated as discussed. For approval please.

regards,

(Dr. S. Kerketta)

Director- IA (Thermal, River Valley & HEP)

MoEF&CC, New Delhi

Phone: [011-24695314](tel:011-24695314) (O), 26113096 (R)

AGENDA OF 4th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON THERMAL POWER PROJECTS

DATE : 17th NOVEMBER, 2020
TIME : 11.00 A.M.- 4.00 PM through Video Conference

ITEM	
Item No. 1.0 Time Slot: 11-11:10 AM (10 min)	CONFIRMATION OF MINUTES OF 3rd EAC (THERMAL) MEETING
Item No.	CONSIDERATION OF PROJECTS
1.1 Time Slot: 11:10-11:40 AM	2x800 MW Ennore SEZ TPP at Vayalur Village, Ambattur Taluk, District – Tiruvallur, Tamil Nadu by M/s TANGEDCO – regarding extension of validity of EC. (F.No. J-13012/36/2010-IA II (T) & Online No. IA/TN/THE/173531/2020)
1.2 Time Slot: 11:40-12:00 PM	Proposed 14.5 MW Coal based Captive Co-Generation Power Plant within the existing facility at Village Puthukkadu, Kokkarakondi, Pirivu, Puthupeerkadavu, Taluk Sathyamangalam, District Erode, Tamil Nadu by M/s Sri Andal Paper Mills Pvt. Ltd. – Regarding Exemption of Public Hearing (F.No. J-13012/02/2020-IA.I(T) & P. No. IA/TN/IND/170382/2020)
1.3 Time Slot: 12:00 -12:40 PM	3x800 MW NLC Talabira Thermal Power Project (NTTPP) at Kumbhari & Tareikela Villages in Jharsuguda, Odisha by M/s NLC India Ltd. – Reconsideration of grant of EC (F.No. J-13012/14/2017-IA.I(T) & Online No. IA/OR/THE/67938/2017)
1.4	ANY OTHER ITEM WITH THE PERMISSION OF THE CHAIR.

**Name of the project
Addressed detailed
e-mail/contact No.**

Undertaking

(To be provided by the PP)

This is to certify that the information provided in Form-.... in physical form and/or in .pdf format (as applicable to the project and remaining be removed) in PARIVESH, to the Ministry/EAC members and PPT presentation during the EAC meeting held on 14.05.2020 have no deviation in respect of the proposal of ToR/EC/EC validity extension/EC amendment for establishing “.....MW Thermal Power Project at village, Taluk, District....., State.....by M/s.

2. It is further certified that there are no data entry errors in the information uploaded in PARIVESH system including names/email-id/mobile numbers/address of the project proponent, authorized person, etc. It is also certified that the supporting documents uploaded on PARIVESH portal are correct and duly authenticated by the Authorized Signatory.

3. In case of any deviation in data found in any of the documents, the Authorized Signatory shall be held responsible and furthermore, the above said project shall be rejected for grant of amendment in EC.

Authorized Signature

date