

MINUTES OF THE 27th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS

The 27th Meeting of the re-constituted EAC (Thermal Power) was held on 26th April, 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:

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| 1. | Dr. Navin Chandra | - | Chairman |
| 2. | Shri Suramya D. Vora | - | Member |
| 3. | Dr. N.P Shukla | - | Member |
| 4. | Shri G.P. Kundargi | - | Member |
| 5. | Shri N. Mohan Karnat | - | Member |
| 6. | Dr.(Mrs.) Manjari Srivastava | - | Member |
| 7. | Dr. Jai Krishna Pandey | - | Member |
| 8. | Shri N.S. Mondal | | Member (Representative of CEA) |
| 9. | Dr. R.K. Giri | - | Member (Representative of IMD) |
| 10. | Dr. S. Kerketta | - | Member Secretary |

Dr. Sharatchchandra Lele, Prof. S.K. Gupta (Representative of ISM Dhanbad) and Dr. S.K. Paliwal (Representative of CPCB) could not be present due to preoccupation.

Item No.27.0: CONFIRMATION OF THE MINUTES OF THE 26th EAC MEETING.

The Minutes of the 26th EAC (Thermal Power) meeting held on 27.03.2019 were confirmed in presence of members present in the meeting.

Item No. 27.0: CONSIDERATION OF PROJECTS

27.1 Proposed Expansion of 726.6 MW (Unit-3&4: 2 x 363.3 MW) Gas Based Power Project at Village Palatana, Tehsil Kakraban, Gomti District, Tripura by M/s ONGC Tripura Power Company Ltd.-reg. Environmental Clearance. (F.No. J-13012/02/2017-IA.II(T) & Proposal No. IA/TR/THE/97559/2006).

(27.1.1) Project Proponent submitted online proposal on 01.03.2019 for grant of Environmental Clearance. The proposal has been earlier listed in the EAC meeting held on 27.3.2019. However, Project Proponent did not attend the meeting. As per the request of the Project Proponent, the proposal has been listed in the present EAC meeting.

(27.1.2) Project Proponent along with the EIA consultants M/s ERM India Private Ltd. made the presentation and submitted the following information:

- i. The Terms of Reference for proposed expansion of 726.3 MW (Unit-3 & 4: 2x363.3 MW) Gas based Power Project has been issued vide Ministry's letter dated 06.04.2017.
- ii. The Environmental Clearance for establishing 2x363.3 MW has been issued vide Ministry's letter dated 07.02.2007 and the validity of the EC has been extended till 05.02.2017 vide Ministry's letter dated 03.05.2012.

- iii. The primary baseline environment data has been collected during March, 2017 to May, 2017 by M/s Mitra SK Private Ltd. (NABL accredited laboratory). Further, Public Hearing has been conducted by Tripura State Pollution Control Board on 4.10.2018.
- iv. Proposed expansion units will be constructed on land available within the main plant. No additional land is to be acquired. Total area of the site is 197.15 acres (79.78 ha) out of which 193.66 acres (78.37 ha) is forest land and 3.49 (1.41 ha) acres is private land. The company has received the Stage-II Forest Clearance from Tripura Forest Department on 25.04.2006.
- v. Out of 197.15 acres, the existing plant has been set up in 164.05 acres and the proposed project will utilise 33.1 acres of land. Greenbelt has been developed in 69 acres.
- vi. In addition to the 193.66 acres, the company will acquire 25.45 acres of land for building raw water pipelines and residential colony.
- vii. The project is located within 10 km radius of Trishna Wildlife Sanctuary. Eco-sensitive Zone of 0.5 km has been proposed by the State Forest Department.
- viii. The project is based on Combined Cycle Gas Turbine which generates electricity and the waste heat is used to generate steam to produce additional electricity via steam turbine.
- ix. The fuel for the proposed project is Natural Gas. The gas consumption for the existing plant at 85% PLF is 2.65 MMSCMD. The gas requirement for the proposed project is in the range of 2.7-3 MMSCMD. Ministry of Petroleum and Natural Gas has allocated 5.0 MMSCM of natural gas to the company. Accordingly, 2.35 MMSCMD is available for the proposed project and the shortfall for expansion project has been requested to MoPNG for additional gas. The gas will be sourced from the gas fields of Tripura operated by M/s ONGC Ltd. The estimated calorific value of the natural gas is 8250 kCal/Sm³.
- x. Water requirement of 100 m³/day will be required during construction phase. The water requirement for the existing plant is 25,320 m³/day. The water requirement for the proposed project is 20,400 m³/day. The water requirement for construction and operation phase will be sourced from Gumti River. The PWD, Govt. of Tripura has granted permission to draw 125 MLD (1.25 Lakh m³/day) from the Gumti river for plant purposes.
- xi. The land use of the study area (10 km radius) includes rubber plantation (37.72%), Agricultural land (27.48%), settlement & homestead plantation (22.75%), natural forest (10.36%), river (0.86%), waterbody (0.25%), etc.
- xii. The project is located in Zone-V of Seismic zone which is most severe. Ambient air quality has been collected from 8 locations. The average PM₁₀ and PM_{2.5} concentrations are in the range of 55.33-66.08 µg/m³ and 26.04-31.33 µg/m³, respectively.
- xiii. Soil quality indicates that there is no contamination from any external source.
- xiv. Noise level monitoring has been conducted at 8 locations. The day time equivalent noise levels are in the range of 42-53.8 dB(A) and night time equivalent noise levels are in the range of 37.6-43.7 dB(A).
- xv. Surface water quality has been collected from Gomti River and nala. The pH of the samples are in the range of 7.43-7.79. DO levels are in the range of 6.0-6.4 mg/l; BOD levels are in the range of <2-2.9 mg/l. Total coliform count is in the range of 350-920 MPN/100 ml. The surface water samples conforms to Class D water classification of CPCB is fit for propagation of fish and wildlife.

- xvi. Ground water samples were collected from 6 locations. Hardness in the groundwater is exceeding the IS 10500-2012 drinking water standards. All other quality parameters are within the standards.
- xvii. Maximum incremental ground level concentrations predicted through air quality modelling from the stack emissions for NO_x and PM_{2.5} is 11.25 µg/m³ and 0.2 µg/m³, respectively.
- xviii. The main issues raised in the public are agricultural development, compensatory afforestation, discharge of wastewater into nearby agricultural fields and damaging the productivity, assistance to dairy development, development of sanitation facilities in the Murapara School, assistance to irrigation facilities, providing street lights, skill development, etc.
- xix. Cost of the project is Rs.3,580 Crores. Cost of Environmental Management Plan during Construction phase and Operation Phase is Rs.19.69 lakhs and Rs.6.32 Crores, respectively. The CSR budget for five years plan is Rs.8.95 Crores.
- xx. Existing manpower is 155 persons. Around 500 number of persons will be required during construction phase. Subsequently, around 235 persons will be engaged during operation phase.

(27.1.2) Committee noted that the natural gas requirement for the proposed project is 2.7 MMSCMD. The availability of gas and agreement letter from ONGC for the proposed project are to be made available so that the availability of sufficient natural gas is ensured. Committee noted that while submitting the application for grant of ToR, project proponent has submitted that Trishna Wildlife Sanctuary is about 20 km in south direction from the project site. However, as per the authenticated map by PCCF, Wildlife vide letter dated 25.4.2018, the distance is shown as 7.74 km. Further, the EC letter for the existing plant vide dated 7.2.2007 also mentions that the project site is surrounded by the reserved forests and Trishna Wildlife Sanctuary which is at 8.00 km distance in south direction. There is a need for requirement of recommendations of NBWL from wildlife angle for the existing power plant. Further, the greenbelt requirement is 33% of the total area including the pipelines to be taken into account. Accordingly, whether sufficient space is available for proposed power project without compromising the 33% of greenbelt area. Further, existing power plant is discharging the wastewater into the River. The zero discharge concept is to be implemented. Further, important bio-diversity, flora and fauna, any schedule-I species are present in the study area needs to be furnished. The wildlife conservation plan should provide the specific focus on schedule-I species and its habitat protection which also needs to be vetted by the Chief Wildlife Warden. Further, the basis of deciding the height of the stack of 60 m for gas based power plant needs to be known. Non-compliances mentioned in the EC compliance reports dated 20.11.2017 to be complied with.

(27.1.3) Committee after discussions, noted that the following information is to be furnished by the Project Proponent for further consideration:

- i. Agreement/MoU regarding availability of sufficient gas and supplying natural gas of 2.7 MMSCMC for proposed project. A copy of the fuel agreement for existing power plant is also to be submitted.
- ii. Explanation for misrepresentation of facts at the ToR Stage regarding location of Trishna Wildlife Sanctuary stating project is located out of 10 km from the sanctuary.

- iii. Status of SC-NBWL recommendations from wildlife angle for existing power plant. Details of application submitted for obtaining NBWL recommendations for the proposed project.
- iv. Action plan for conversion of entire water treatment system into zero discharge system for both existing and proposed power project. Revised water balance diagram for reducing the water consumption of the existing and proposed units is to be submitted.
- v. The scientific basis for arriving stack height of 60 for gas based power plants.
- vi. Details of Schedule-I protected species (flora and fauna) within the study area. The wildlife conservation plan for Schedule-I species to be vetted by Chief Wildlife Warden.
- vii. Justification for high ambient air quality values in the plant premises as the PM₁₀ value is touching the standard of 100 µg/m³.
- viii. Justification of the availability of land for the proposed project without compromising the 33% of greenbelt area including the land covered by pipelines.
- ix. The action plan along with financial allocations to address the public hearing issues such as agriculture development, assistance to irrigation, education and compensatory afforestation is to be revised. Further, Ministry's vide Circular dated 1.5.2018 stipulated guidelines and budget to be allocated for Corporate Environmental Responsibility. The action plan in line with the Circular dated 1.5.2018 is to be prepared.
- x. Ministry's Regional Office submitted the certified compliance report vide dated 20.11.2017 and 1.4.2019. The regional office observed several non-compliances and made certain recommendations such as malfunctioning of Online Effluent monitoring sensors, isolated patches of bare area in the area designated for greenbelt, need for regular monitoring of PM_{2.5} and HC, not developing peripheral 50 m wide greenbelt, non-submission of details regarding item-wise & year-wise breakup of allocation of funds and expenditure made towards environmental protection measures, not uploading of latest compliance report on company's website, need for connecting the online monitoring (both effluent and ambient air quality, stack emissions) values to digital display such as LCD projector for displaying at the entrance and other prominent places, submission of copy of proceedings of mock drills and Public Liability Insurance Policy, etc. The action plan to address the points raised in the RO certified compliance reports is to be submitted.

(27.1.4) **Committee after detailed deliberations, recommended for the conducting the site visit by the sub-committee** consisting of following members to address the issues related environmental sensitivity such as forests, adequacy of greenbelt, presence of endangered biodiversity and wildlife, socio-economic conditions, emissions and effluent discharge, etc.

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| i. Dr. Navin Chandra | - | Chairman |
| ii. Shri Gururaj Kundargi | - | Member |
| iii. Shri Mohan Karnat | - | Member |
| iv. Shri Manjari Srivastava | - | Member |
| v. Shri N. S. Mondal, CEA | - | Member |
| vi. Representative of MoEF & CC | - | Member Secretary. |

Accordingly, the project is deferred till the information is submitted and the site visit report is submitted by the sub-committee.

(27.2) 1x660 MW Supercritical Thermal Power Plant existing Amarkantak Thermal Power Station (Phase-I&II: 290 MW), Village Chachai, Anuppur District, Madhya Pradesh by M/s MP Power Generating Company Ltd.- reg. ToR. (F.No. J-13012/07/2019-IA.II(T) & Proposal No. IA/MP/THE/94619/2019).

(27.2.1) Project Proponent has submitted online application on 20.03.2019 for grant of ToR.

(27.2.2) Project Proponent along with EIA consultants made the presentation and *inter-alia*, submitted the following information:

- i. The proposed 1x660 MW Thermal Power project is an expansion of existing Amarkantak Thermal Power Station located at Chachai village, Anuppur District, in the state of Madhya Pradesh, India.
- ii. The site is situated at coordinates with Latitude: 23°10' 04" North and Longitude: 81°39' 15" East and exists at 625 m above mean sea level (MSL). The nearest town to the site is Amlai which is about 7 km (NW) and District Head Quarter Anuppur is about 10 km (SE). Nearest Railway Station is Amlai which is about 8 km (West). Jabalpur Airport is about 250 km. Sone River is located at 1.6 km (East) from the project site. Chachai Lake is adjacent to the power plant site.
- iii. The existing Amarkantak Thermal Power Station has been plant to decommission in three phases. Details are as below:

Phase	Unit	Capacity	Commissioning Date	Current Status
I	1	30 MW	1965	Decommissioned on 01.04.2009
	2	30 MW (De-rated to 20 MW)	1965	Decommissioned on 01.04.2009
II	3	120 MW	1977-78	Decommissioned on 13.01.2015
	4	120 MW	1977-78	Decommissioned on 01.05.2014
III	5	210 MW	09.09.2009	Under operation

- iv. The installation of proposed 1x660 MW supercritical unit is proposed to be installed at existing spaced of decommissioning/retired units
- v. The land requirement for the proposed project is 383 acres out which 165 acres has been designated for ash pond. Out of 383 acres, 7.086 ha is the forest land for which forest diversion proposal under Forest (Conservation) Act, 1980 is yet to be submitted.
- vi. There are no wildlife sanctuaries and protected areas under Wildlife (Protection) Act, 1972. However, there are Reserved Forests available within 10 km radius of the project, viz. Burhar RF, Mauhar RF, Lakhanpur RF and Mauhari RF.

- vii. Coal requirement for 1x660 MW unit has been estimated as 3.45 MTPA. The company has the coal linkage of (2 MTPA) with SECL coal fields in which 1 MTPA coal required in PH-III (1X210MW) and rest 1 MTPA coal is available for the proposed unit (1X660MW). Coal will be used from SECL and will be transported by own railway system of MPPGCL.
- viii. Water requirement for the proposed project is about 12,000 KLD. This water will be sourced from Suthna Reservoir and Sone River.
- ix. Manpower requirement during construction phase is about 3000 and operation phase is about 400. Cost of the project including IDC & Financing cost is Rs.4,665.87 Crores.

(27.2.3) Committee noted that the existing power plant with capacity of 210 MW is running. Further, the project site is located adjacent to Chachai Lake and forests which are sensitive areas. As informed the ash pond area has been proposed at 3.5 km from the Chachai Lake. The application for forest diversion of 7.086 ha is yet to be submitted to the State Forest Department under Section 2 of Forest (Conservation) Act, 1980. Further, the availability of the land for the proposed project should also take the peripheral greenbelt plan of 33% of the project area.

(27.2.4) **Committee after detailed deliberations, deferred the project for the following information:**

- i. Details of feasibility of undertaking the project only in the non-forest area. If not, the details of credible online application submitted for diversion of forest land under Forest (Conservation) Act, 1980, in line with the Ministry's Office Memorandum dated 31.03.2011.
- ii. Efforts shall be made not to construct new ash pond (165 acres). The details of capacity remain for the existing ash pond including the time period to fill the same.
- iii. The details of dismantling of the existing units. The details of ambient air quality, stack emissions and effluent discharges of the existing plant are to be submitted.
- iv. The details of preparedness to achieve new emission standards notification dated 07.12.2015.
- v. The project layout map indicating existing plant, proposed project, development of 33% greenbelt area around the periphery of the project area including ash ponds.

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(27.3) Expansion by addition of 1x250 MW Lignite Based Barsingsar Thermal Power Plant at Village Barsingsar, Taluk Kolayat, District Bikaner, Rajasthan by M/s NLC India Ltd.-reg. extension of Validity of EC. (F.No. J-13012/32/2008-IA.II (T) & Online no. IA/RJ/THE/17074/2011).

(27.3.1) Project Proponent submitted online application on 10.04.2019 for extension of validity of Environmental Clearance dated 30.7.2012 for four years beyond seven years.

(27.3.2) Project Proponent has attended the meeting and made the presentation and, *inter-alia* submitted the following information:

- i. Environmental Clearance for 1x250 MW Lignite based Thermal Power Plant has been issued vide Ministry's letter dated 30.07.2012 which is valid for five years, i.e. till 29.07.2017.

- ii. As per the EIA amendment Notification dated 14.09.2016, the validity of EC has been increased from five to seven years. As the said EC is valid on the date of publication of notification, the validity automatically gets extended to seven years, i.e. till 29.7.2019. The same has been clarified vide Ministry's letter dated 29.6.2017
- iii. 2x125 MW Lignite based Thermal Power Plant is already in operation since 2009.
- iv. The Lignite requirement for the proposed project is 1.99 MTPA which is to be sourced from Hadla mine (1.9 MTPA) and Palana mines (0.6 MTPA). However, the land acquisition for development of Hadla mine is not yet completed and under process by Govt. of Rajasthan. Since, the connected mine is not developed, the project activities have not been implemented.
- v. Further, Letter of Award was awarded to M/s Reliance Industries Ltd. as EPC Contractor to execute the work of proposed Unit of 1x250 MW. Slow progress of work executed by the EPC contractor is also another reason for delay in implementation.
- vi. PPA has been signed between the company and Govt. of Rajasthan on 30.12.2010. Land required for the power project is already under possession of the company.
- vii. Site grading work and soil investigation works have been completed till date. Site office has been established by the contractor. Batching plant foundation is under construction. Boiler foundation bolt received at the site. Ware house and semi-permanent store has been constructed. Water and power for construction phase has been made available. Buildings such as guest houses have been made ready.
- viii. A total of Rs.158.37 Crores have been spent till March, 2019 out of the total project cost of Rs.2,435 Crores.
- ix. Efforts will be made to complete the project within three years. Periodic review meeting with EPC contractor will be held and pursued to increase manpower and expedite supply of materials to achieve the commissioning schedule.

(27.3.3) Committee noted that there is no substantial physical progress in the project. However, Project Proponent has made PPA with Rajasthan Government and EPC contract has already been awarded. Committee noted that the implementation of the project requires maximum period of 3-5 years. Though exact reasons are not known for delay, committee noted that the project can be completed within 3 years, if the progress of construction activities is made at faster pace.

(27.3.4) Committee after detailed deliberations, recommended for extension of the Environmental Clearance dated 30.7.2012 for further period of three years, i.e. till 29.07.2022 subject to the following additional conditions:

- i. The progress report of the construction activities along with expenditure spent is to be submitted to the Ministry and its Regional Office as a part of Six Monthly Compliance Report till the project is commissioned.
- ii. Preparedness of the plant for meeting the new emission norms notified vide dated 07.12.2015 for the existing power plant and the proposed power plant including specific water consumption.

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(27.4) 3x800 MW Super-Critical TPP at Village Annapurna Khamar, Taluk Kamakhyanagar, Dhenkenal Distt., Odisha by M/s. Odisha Thermal Power Corporation Ltd.- reg. re-consideration of Environmental Clearance. (F.No. 13012/43/2012-IA.II(T) & Proposal no. IA/OR/THE/10522/2012).

(27.4.1) Project Proponent has submitted the final EIA/EMP documents vide their online application dated 01.03.2017 for grant of environmental clearance. Earlier, the proposal was considered in the 5th EAC meeting held on 26.04.2017. However, PP could not be present in the meeting held on 26.04.2017. Subsequently, the proposal was appraised by the EAC in its meetings held on 29.05.2017 and 12.01.2018. The EAC in its meeting held on 12.01.2018 sought the following additional information:

- i. Water sustainability studies to be conducted for determining the demand of instream users and environmental flow. The study should clearly bring out the impacts on the downstream users and instream biota due to the water drawl for the proposed project.
- ii. Wildlife Management Plan be vetted by the Chief Wildlife Warden and a copy of the plan shall be submitted to the Ministry.
- iii. Prediction of Air quality impacts shall be carried out for worst case scenario (Failure of ESP or FGD or NO_x control systems)
- iv. Status of Forest Clearance shall be submitted.

(27.4.2) Project Proponent vide online submission dated 13.02.2019 submitted reply to the above information. Accordingly, the proposal has been considered in the EAC meeting held on 22.02.2019. EAC after deliberations sought the following additional information:

- i. The map showing distance between elephant corridor, project boundary, the geographical extent of Schedule-I and II species in and around the project area. Details of number of each species recorded in the impact zone.
- ii. Details of greenbelt proposed in the project and in the wildlife management plan along with the map indicating the length, width and coordinates of the proposed greenbelt.
- iii. Details of air quality modelling shall be presented. The emissions of SO_x in case of failure of FGD for three units may be re-calculated. Further, the emissions may be calculated for stack height of 275 m, 100 m and as per the formula provided in the Ministry's Notification dated 28.06.2018. It should also take into account of exit velocities of the flue gas.
- iv. Off set plan for cutting 13,264 trees in non-forest area and 2,829 trees in the forest area.

(27.4.3) Project Proponent vide online application dated 5.4.2019 has submitted the details. Accordingly, the proposal has been placed before the present EAC meeting. The Project Proponent along with M/s MECON Ltd. have made the presentation and inter-alia, provided the following information:

- i. The map showing the distance between Maulabhanja-Jiridimali-Anantapur identified Elephant corridor passing through the northern fringe of project impact area and showing distances between elephant corridor, project boundary, the geographical extent of schedule-I & II species in and around the project area has been submitted.

- ii. The distances of the elephant corridor from the boundary of the project are 13.9 km & 13.85 km, respectively from two extreme ends.
- iii. Schedule-I fauna like elephant movement from one forest block to other in search of food & water. Usually they migrate from Anantapur RF, Kapilash Wildlife sanctuary mentioned in the plan to the project impact area, etc. There are 13 different species of Schedule-I are present in the study area.
- iv. Development of green belt, mentioned in Wildlife Management Plan is a part of green belt already proposed in the project area and no separate green belt has been considered. Only mention in the Wildlife Management Plan again in view of the guidelines of PCCF (WL) cum CWLW, Odisha.
- v. Details of green belt proposed in the main plant area consisting of 13 patches along with details of length, width & GPS co-ordinates.
- vi. Avenue plantation for 9 km comprising of indigenous ornamental, fruit bearing and shady species have been proposed to be taken up along the roads.
- vii. The air quality modelling has been carried out considering the stack heights of 100 m and 275 m. Two scenarios have been considered viz. Normal case: all units working; Worst Case: failure of all three units. The predicted concentrations are as below:

Details	Stack Height 275 m		Stack height 100 m	
	Normal Scenario	Worst Case Scenario	Normal Scenario	Worst Case Scenario
Incremental Concentrations	9.63 µg/m ³	99.53 µg/m ³	306.8 µg/m ³	3169.8 µg/m ³
Baseline AAQ	13 µg/m ³	13 µg/m ³	13 µg/m ³	13 µg/m ³
Total glc	22.63 µg/m ³	112.53 µg/m ³	319.8 µg/m ³	3182.8 µg/m ³
NAAQ Standards	80 µg/m ³	80 µg/m ³	80 µg/m ³	80 µg/m ³
Remarks	Within the standard	Exceeding the standard	Exceeding the standard	Exceeding the standard

- viii. It has been proposed to plant two times the number of trees to be felled in the non-forest area in consultation with the State Forest Department. Accordingly, 26,600 trees will be planted against the 13,264 trees to be felled in the non-forest area.
- ix. Concerned Divisional Forest Officer and Divisional Manager of Odisha Forest Development Corporation, who will execute the plantation after obtaining required funds from the user agency i.e. OTPCL. A detail scheme is being prepared by the PP for approval of DFO, Dhenkanal and D.M., Dhenkanal.
- x. It is proposed to take up single row plantation on both the sides of the corridor over a length of about 7 km with a spacing of 2.5 m i.e. 800 plants per km totalling to 5,600 nos.
- xi. It is proposed to take up double row plantation of indigenous species around the proposed ash pond having area 188.686 ha and a length of around 11 km with a spacing of 2.5x2.5 m i.e. 800 plants per km to strengthen the embankment of ash pond. The location of plantation is between latitude 20°46'1.7" & longitude 85°29'48.3" and all total 8,800 nos. of seedlings will be planted.

- xii. Single row plantation along the boundary of township over a length of 3 km (spacing 2.5x2.5 m). All total 1200 plants can be planted along the boundary and 800 plants in the open species inside the colony, and avenue from State Highway of 1600 plants totalling to 3,200 plants.
- xiii. Also OTPCL proposes to develop greenery around its township and approach road from Dhenkanal-Kamakhyanager State Highway by planting ornamental, fruit bearing and shady species.
- xiv. As per instruction of DFO, Dhenkanal cited above OTPCL proposes to take up single row avenue plantation with a spacing of 2.5 m on both the sides and around the embankment of water bodies and along the roads.
- xv. Therefore, total plants proposed to be planted to be 30,200 nos. against felling of 13,264 nos. of trees standing in non-forest land to compensate the loss of greenery and existing echo system to be caused due to project implementation. A detail scheme shall be prepared with budgetary provision after environment clearance is obtained. The cost of plantation in to be deposited to the state forest Department and shall take up plantation in consultation with the DFO, Dhenkanal Division and DM, OFDC, Dhenkanal.
- xvi. To compensate the loss of forests from forest land of 38.098 ha. A total of 2,829 nos. of trees of different species have already been identified from the existing 38.458 ha of non-forest land in three patches in village Kateni, Kantakhol and Jogidiha under Dhenkanal Forest Division for Compensatory Afforestation in lieu of diversion of forestland. The compensatory afforestation scheme with a financial outlay of Rs.1,72,17,305/- shall duly be prepared & approved in consultation with DFO, Dhenkanal/RCCF, Angul.

(27.4.4) Committee noted that dispersion modelling has shown that incremental concentrations are exceeding in the normal scenario with the stack height of 100 m. Accordingly, committee recommended that 275 m stack is to be installed. Further, project proponent has given the commitment that 30,200 nos. of trees to be developed against 13,264 trees to be cut in the non-forest area. For the trees to be cut in the forest area, project proponent has identified compensatory afforestation land and the relevant payments have been made to State Forest Department. Further, the map shows elephant corridors are indeed present near the project area. There are Schedule- I species present in the study area of 10 km radius. Accordingly, the conservation plan for habitat improvement and wildlife protection has been prepared for the period of 10 years with budget of Rs.15.58 Crores and vetted by the Chief Wildlife Warden. The Stage-I Forest Clearance for diversion of 38.098 ha is under process by the State Government.

(27.4.5) **Committee after detailed deliberations, recommended for grant of Environmental Clearance for the proposed project with following additional conditions in addition to the standard conditions stipulated at *Annexure-A2*:**

- i. Copy of the Stage-I Forest Clearance for 38.098 ha.
- ii. Total of 30,200 nos. of trees shall be planted against 13,264 trees trees to be cut in the non-forest area in consultation with State Forest Department. The expenditure required for maintenance shall be borne by the Project Proponent. The progress of plantation which includes number of saplings planted, area, geographical co-ordinates, type of species planted, survival rate in each year, expenditure, etc. The greenbelt plan finalised in consultation with Forest

- Department shall be submitted within six months from the date of commencement of construction. Transplantation shall also be explored.
- iii. The progress of construction on all aspects (include financial closure, land acquisition, orders of BTG & BOP, civil, mechanical, electrical works, railway siding, pipelines, etc.) shall be submitted along with the expenditure incurred so far.
 - iv. The wildlife conservation plan for habitat improvement and wildlife protection prepared for 10 years with budget of Rs.15.58 Crores and vetted by the Chief Wildlife Warden shall be implemented. The annual certificate from the Wildlife Department on expenditure on various activities shall be submitted in the compliance report.
 - v. Total water quantity withdrawn from Samal Barrage along with daily average, minimum and maximum water quantity for six month period during April-September and October-March shall be submitted as a part of compliance report on or before 1st December and 1st June of every calendar year, respectively.
 - vi. The quantity of coal used for six months and daily average quantities for six month period shall be submitted as a part of compliance report. The details of Coal mine, distance from the power plant and mode of transportation shall also to be indicated.
 - vii. The quantity of ash generated (six monthly, daily average) and utilised shall be submitted to the Regional office.
 - viii. The list of units using flyash within 100 km and 100-300 km radius shall be mapped for supply flyash free of cost to units within 100 km and sharing transportation cost for units between 100-300 km from the plant. The list shall be updated periodically. A newspaper advertisement shall be issued stating the flyash stock position to take the flyash free of cost in line with the Flyash Utilisation Notification.
 - ix. The stack of 275 m shall be set up with the exit velocity to be maintained at 25 m/s.
 - x. Online stack monitoring shall be set up and the data shall be connected to CPCB and OSPCB server.
 - xi. As the elephants are cited nearby and elephant corridors are at approximately 13 km, the specific recommendations of Chief Wildlife Warden shall be obtained to minimise the disturbance of elephant movement with project activities/ operations.
 - xii. Power Generation for six months period, average PLF shall also be submitted.
 - xiii. The estimated project cost is Rs.16,265.425 crores. As proposed, the capital cost of environmental control measures will be Rs. 11,854.673 crores and that of Environmental Monitoring facilities is Rs. 22 crores.
 - xiv. In line with Ministry's OM dated 1.5.2018, the budget of Rs.40.66 Crores (0.25% of project cost) shall be earmarked for Corporate Environmental Responsibility (CER). The annual expenditure spent along with the activities shall be submitted to the Ministry. The amount earmarked under CER is exclusive of R&R activities.

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(27.5) 1980 MW (3x660 MW) Coal based Thermal Power Plant at Village Bujbuja and Dokariya, Taluk Barhi and Vijayaraghavgarh, District Katni, Madhya Pradesh by M/s Welspun Energy Madhya Pradesh Ltd.-reg. extension of validity of EC.

(F.No. J-13012/98/2010-IA.II(T) & Proposal No. IA/MP/THE/17057/2010)

(27.5.1) Project Proponent has submitted online application on 12.04.2019 for extension of Environmental Clearance dated 1.6.2012 for further period of three years beyond seven years.

(27.5.2) Project Proponent made the presentation *inter alia* submitted the following information:

- i. The Environmental Clearance for 3x660 MW Imported Coal based Thermal Power Project in District Katni, Madhya Pradesh has been issued vide Ministry's letter dated 1.6.2012 which is valid for five years, i.e. till 31.05.2017.
- ii. As per the EIA amendment Notification dated 14.09.2016, the validity of EC has been increased from five to seven years. As the said EC is valid on the date of publication of notification, the validity automatically gets extended to seven years, i.e. till 31.05.2019.
- iii. The construction of Thermal Power Plant could not be started in the absence of Power Purchase Agreement and Financial Closure. WEMPL would like to implement this project, once the PPA is signed and the Financial Closure achieved. Power Purchase Agreement could not be tied up for sale of Power which is one of the main reasons why construction activities of power plant have not been initiated.
- iv. Company has completed infrastructure development like Boundary Wall, Site Office, Technical Studies and executing R&R activities as approved by Government of Madhya Pradesh.
- v. Recently, with the New Power Policy in place and the GOI taking initiatives in the power sector to ensure "24x7 Power for all", we are hopeful to develop this power plant soon.
- vi. Further, the company has applied to Ministry of Coal for grant of Long term coal linkage under Shakti Scheme on 23.12.2017.
- vii. PPA for 5/7.5% of Net Power executed on 16.08.2011 with Govt. of MP on Variable Charge basis with term up to de-commissioning of the Plant. Bank Guarantee of Rs.2.97 Crores is deposited to MP Power Management Company Ltd and validity ids being maintained.
- viii. In 2013, Ministry of Power has issued new Standard Bidding Document wherein, any state can come with long term bidding process for procurement of power based on specific fuel such as Domestic Coal Linkage, Captive Coal Block and Imported Coal. Due to this, the company was unable to participate in any of the long term bidding process as Bids for TPP's with Domestic Coal Linkage were issued during that period. As per the new Bidding Document, plant having EC can only participate in the long term bidding process for sale of power.

ix. The expenditure incurred towards project are provide below:

Type of activity	Expenditure till date	Source
Land (including R&R)	Rs.65.26 Crores	Equity Share Capital: Rs.5 Crores
Other fixed assets	Rs.12.02 Crores	Promoters Contribution: Rs.107.04 Crores
Pre-operative Cost (including other assets net of current liabilities)	Rs.34.76 Crores	
Total	Rs.112.04 Crores	

(27.5.3) Committee noted that that there is no significant progress of the construction of power project in the last seven years. Committee has to see whether the project can be completed in three years. As informed Project Proponent, Rs.112.04 Crores spent on land acquisition and other pre-operative costs. Physical construction activities have not started yet except a boundary wall. Committee noted that since there is a provision of extending 3 years is available in the EIA Notification, an opportunity can be given to complete the project within three years. However, to start the project at present, Power Purchase Agreement (PPA) is required. Project Proponent is hopeful of getting PPA within six months. The zero date of the actual construction will start only after PPA is in place. If PPA is available, whether the project can be completed within three years is also questionable.

(27.5.4) **Committee after detailed deliberations and based on the request of Project Proponent, recommended for extension of validity of Environmental Clearance** dated 01.06.2012 for further period of three years, i.e. till 31.5.2022 subject to the following additional conditions:

- i. As proposed, FGD, Low NO_x burners with SCR shall be installed to meet the revised flue gas emission norms.
- ii. The Environmental Clearance issued 1.6.2012 is based on imported coal. Any change in fuel source/quality requires fresh environmental impact assessment studies for appraising incremental resources, impacts and appropriate mitigation measures, thereof.
- iii. Capital budget of 0.25% of capital cost for greenfield project for implementing activities under Corporate Environment Responsibility as per Ministry's OM dated 01.05.2018 shall be earmarked and the annual implementation programme along with expenditure shall be submitted. As per the EC, project Cost is Rs.9,009.28 Crores. The details of revised project cost as on date shall submitted to the Ministry within three months.

(27.6) 2x67.5 MW Coal based Captive Thermal Power Plant, Village Annantpur, Tehsil Athagarh, District Cuttack, Odisha by M/s Bhubaneswar Power Private Limited-reg. extension of temporary permission for road transportation.

(F.No. J-13012/91/2008-IA.II (T) & Proposal no. IA/OR/THE/82479/2018)

(27.6.1) Project Proponent has submitted online application on 15.10.2018 for extending the temporary permission for transportation of coal by road from MCL, Talcher and other sources to project site.

(27.6.2) The Environmental Clearance for 2x67.5 MW Coal based Captive Thermal Power Plant in Cuttack District, Odisha has been issued to M/s Bhubaneswar Power Private Ltd. vide Ministry's letter dated 14.5.2010 which was valid for five years, i.e. till 13.05.2015. The validity of the said EC has been extended for further period of two years, i.e. till 13.5.2017 vide Ministry's letter dated 14.08.2015. A temporary permission for transportation of coal by road (about 16.78 km) from Raj Athagarh Railway siding for a period of three years, i.e. till 22.12.2018 has been accorded vide Ministry's letter dated 23.12.2015. Further, an amendment in EC for increasing the project area from 80 acres to 180 acres for additional greenbelt as per NBWL recommendations, utility corridors and railway siding has been issued vide Ministry's letter dated 15.06.2018.

(27.6.3) The temporary permission dated 23.12.2015 for transportation of coal by road for three years will get expired on 22.12.2018. Accordingly, the present application has been submitted on 15.10.2018 along with Fom-1 for seeking extension for continuing the road transportation. The proposal has earlier been considered in the 22nd EAC (Thermal Power) meeting held on 25.10.2018. The EAC in its meeting held on 25.10.2018, deferred the project and recommended the following:

- i. The Project Proponent must immediately stop road transport of coal from Talcher (97 km) and only do road transport from the Raja Athagarh rail siding as has been temporarily permitted.
- ii. Ministry may take a separate call to initiate action against the PP on the violation of EC conditions (with temporary permission) that has already occurred as noted above.
- iii. The Ministry may also inform the Odisha State Pollution Control Board to initiate action against the PP regarding violation of the CTO.
- iv. E-auctioning was allowed to the PP by MCL without obtaining permission of e-auction based coal supply from the Ministry. In this regard, Ministry may seek clarification from MCL regarding how e-auctioning to the PP was allowed.
- v. The EAC opined that Ministry may discuss with Coal India Ltd. and the Ministry of Railways regarding the policy of not making rakes available for transport of coal supplied through e-auctions, and may take a suitable decision to make rail transport possible in the interest of reducing the environmental pollution burden.

(27.6.4) Subsequently, Ministry vide letter dated 19.12.2018 directed Project Proponent to immediately stop the transportation of coal by road from Talcher (97 km) till the permission to do so is accorded. Further, as the coal quantity of 14,11,076

Metric Tons has been transported from Talcher (97 km) and 1,67,404.3 Metric Tons has been transported from Raja Athagarh Railway siding (17 km) since December, 2015 to March, 2018 by road and the permission was only available for transporting coal from Raj Athagarh Railway siding, a show-cause notice has been issued vide Ministry's letter dated 19.12.2018. Subsequently, Project Proponent has submitted the justification. A personal hearing has been conducted in the Ministry. Based on the justification provided by the Ministry, show cause notice has been withdrawn vide Ministry's letter dated 16.4.2019 subject to the compliance of following conditions:

- i. Avenue plantation along the total length of the route (Talcher-97 km) shall be developed in consultation with Social Forestry Department and the custodian of the road (NHAI/PWD). The expenses for plantation, protection and maintenance for five years shall be borne by the M/s Bhubaneshwar Power Pvt. Ltd. for selection of species, number of species in a specific length, technical guidance for maintenance, Social Forestry Department shall be consulted.
- ii. An action plan indicating number and type of saplings, time schedule, budgetary allocation for development and maintenance shall be prepared by the Social Forestry Department.

(27.6.5) Accordingly, the proposal has been considered in the present meeting. Project Proponent along with consultants, M/s Visiontek Consultancy Services Pvt. Ltd. has made the presentation and submitted the following information:

- i. Coal Supply Agreement was signed on 10.12.2010 for 6,87,000 Tons per annum with MCL. The primary mode of transportation based on the conditions in the agreement was that through railways.
- ii. MCL reduced the commitment to supply coal through MoU signed on 15.02.2016 which restricted the committed quantity to 50% of the originally contracted quantity i.e. only 3,43,500 Tons per annum
- iii. Hence, the shortfall of the coal was to be met by purchasing coal from MCL spot e-auction, which is offered only by road
- iv. Further MCL issues notification from time to time restricting the coal supply of contracted coal by rail to 75-80% due to acute shortage of rakes from Railways.
- v. Due to the above, the potential to transport coal through rail got drastically reduced from time of LoA and Coal Supply Agreement in 2008 and 2010 respectively to MoU signed in 2016.
- vi. Further due to severe constraint in railways and priority accorded to Govt. Power Plants, the indent placed to railways for coal transport gets matured after 3-4 months leaving no option but to transport coal by road to keep the power plant running.

- vii. CPP being Non-Power Sector gets the last preference in rake allotment from Railways after catering to the Power, Aluminium, Iron and Steel segment requirements.
- viii. Rajathgarh is a Public Siding which is being utilized by many users and is permitted on availability basis.
- ix. Not only the coal sourced through e-auction is significantly higher in price (base price of 30% higher than notified price), the transportation rate through road is also higher than that of rail transport.
- x. In terms of cost, transportation through rail is significantly more economical and desirable, but due to constraints, BPPL is compelled to transport coal by road. The details of cost of coal for rail and road transportation is provided below.

Cost Item	FSA Coal By Rail	E-Auction coal by Road
Basic Coal Price	Rs.1063 /ton	Rs.1382* /ton
Total Coal Price	Rs.1911 /ton	Rs.2308 /ton
Transportation Cost	Rs.409 /ton	Rs.699 /ton
Total Cost	Rs.2320 /ton	Rs.3007 /ton
*Base price for e-auction considered, actual price is always higher than base price		

- xi. Traffic studies have been carried out during the month of January 2019.

S. No	Monitoring Location	Road	PCU Count				
			2-Wheeler	3-Wheeler	LMV	HMV	PCUs/day
T1	Dhenkanal	NH-55 (Sambalpur-Cuttack)	527	998	4352	4954	10831
T2	Ghantikal	PWD road (connecting NH-55 and Plant)	208	658	448	2609	3923
PCU Factors: 2-Wheeler: 0.75, 3-Wheeler: 2, 4-Wheeler: 2, HMV:3.7 (Source: IRC-106:1990); PCU: Passenger Car Units							

- xii. The monitored peak traffic levels in terms of PCUs are far lesser than the stipulated standards by IRC for traffic capacity of the existing road network.
- xiii. The existing road network is found adequate for the present traffic scenario.
- xiv. Out of the total load plying on the approach roads, a max of 274 trips/day, i.e., 1014 PCUs can be contributed by coal transportation of BPPL.

- xv. The incremental contribution of BPPL load very less as compared to total traffic load on the Highway.

S. No	Monitoring Location	Details	V (Volume in PCU/hr)	#C (Capacity in PCU/hr)	Existing V/C Ratio	*Level of Service
T1	Dhenkanal (NH-55)	Average Hour Load	451	1500	0.30	B
		Peak Hourly Load	686	1500	0.46	C
T2	Ghantikal (Plant Approach road)	Average Hour Load	163	900	0.18	A
		Peak Hourly Load	244	900	0.27	B

Source: IRC-106:1990; *Level of Service (LoS) as per IRC; PCU: Passenger Car Units, V: PCU Volume, C: capacity

- xvi. The level of service of the road based on Volume/ Capacity are give below:

S. No	V/C	LOS	Performance	S. No	V/C	LOS	Performance
1	0.0-0.2	A	Excellent	4	0.6-0.8	D	Fair/Average
2	0.2-0.4	B	Very Good	5	0.8-1.0	E	Poor
3	0.4-0.6	C	Good	6	1.0 & Above	F	Very Poor

- xvii. Existing Highway is found adequate for the present traffic scenario including the BPPL load.
- xviii. For estimation of impacts due to vehicular emissions, the impacts dispersion modelling has been carried out by using the air quality model CALINE4 line source model, developed by California Department of Transportation.
- xix. The peak incremental hourly traffic of BPPL on highway have been considered to predict the worst case scenarios.

Pollutant	Predicted Incremental Concentration for Run Type- Worst Case Wind Direction (micro-g/cum)				Average Monitored AAQ Concentration in vicinity (micro-g/cum)	NAAQ Standards (micro-g/cum)
	Scenario-1 (Roadway)		Scenario-2 (Road + Rail)			
	5 m	25 m	5 m	25 m		
CO+HC	0.2	0.1	0.1	0.1	530	2000
NO ₂	0.01	0.03	0.01	0.00	23.4	80
PM ₁₀	1.8	8.5	1.2	6.9	68.1	100

- xx. It has been observed that monitored AAQ concentration, also covering concentration due to vehicles plying to BPPL is within the CPCB limits.
- xxi. Incremental contribution due to vehicles BPPL is not significant compared to NAAQ Standards.
- xxii. BPPL is equipped with effective pollution control measures and environmental management action plan.
- xxiii. Sprinkling of water is being regularly carried out for 6.5 km starting from Jenapur to BPPL plant.
- xxiv. Avenue plantation has been systematically carried out since 2016 and being maintained by BPPL.
- xxv. Restricted entry norms by the trucks are being strictly followed along the approach during morning and evening hours.

(27.6.6) Committee noted that the show-cause issued to project proponent has been withdrawn based on the justification provided in the personal hearing. Committee noted that the traffic impact assessment study which was conducted has not been circulated to all members. Further, the study report is not uploaded online also so that the members can access the report in advance to understand the findings of the study such as number of trucks, quantity of coal planned to be brought on different routes, distance of each route, input emission parameters considered for the truck exhaust whether based on BS-IV or BS-VI, presence of habitations and sensitive receptors along the road, etc. Based on the presentation made by the project proponent, results are presented such as the traffic adequacy and incremental air quality concentrations, etc. With respect to the construction of railway siding and line of 2 km shall be constructed to connect the project site to broad gauge line between Ghantikhala and Sarpeshwar PH railway stations, 19.42 acres is acquired out of 32 acres. The balance land acquisition is under progress and expected to be completed in next few months. Project Proponent informed that the construction activity of Railway siding will start after land acquisition land and once grounded and it will take about 28 to 30 months to commission the Railway siding.

(27.7.7) Committee after detailed deliberations, recommended for permission for extension of permission dated 23.12.2015 for transportation of coal by road for another period of two years, i.e. from 23.12.2018 to till 22.12.2020 for transportation of coal by road from both Raj Athagarh Railway siding (17 km) and Talcher (97 km) subject to following additional conditions:

- i. The soft copy of traffic impact assessment study report is to be uploaded on the Ministry's website as well as Company's website.
- ii. The conditions stipulated in Ministry's Show-cause withdrawal letter dated 16.04.2019 shall be complied with.
- iii. The detailed progress of the construction of railway siding, balance work, expenditure spent, estimated time required for completion, etc. is to be submitted to the Ministry and its Regional Office for monitoring.

- iv. The quantity of coal transported from various routes/sources including rail shall be submitted month-wise, daily average, minimum and maximum for six month period April-September, October-March as part of compliance report.
- v. The preparedness and readiness of the power plant to install additional pollution control measures to achieve the revised flue gas emission standards dated 07.12.2015 shall be submitted to the Ministry. A copy of extension of timelines given by the CPCB, if any to install the pollution control measures such as ESP upgradation for meeting PM emissions, FGD for SO₂ reduction, NO_x control measures, etc. is to be submitted to the Ministry.

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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 PM₁₀, PM_{2.5}, SO₂, NO_x, 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 CO₂ 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.

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 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. 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 (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 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 ofha, along the coast/ on the banks of Estuary.

Attendance List

LIST OF MEMBERS (Attendance Sheet)

27th EXPERT APPRAISAL COMMITTEE MEETING (Thermal)

DATE & TIME : 26th April 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	<i>Navinchandra</i>
2.	Shri Suramya D. Vora, IFS (Retd.) Member	<i>S D Vora</i> 26/4/2019
3.	Dr. Narmada Prasad Shukla Member	<i>NPS</i> 26.04.19
4.	Sh. N. Mohan Karnat, IFS Member	<i>N Mohan Karnat</i> 26/April/2019
5.	Dr. Sharachchandra Lele Member	ADS
6.	Sh. N.S. Mondal, CEA Member	<i>N S Mondal</i> 26/4/19
7.	Dr. R.K. Giri, IMD Member	<i>R.K. Giri</i> 26/4/19
8.	Dr. S.K. Paliwal, CPCB Member	ADS
9.	Prof. S.K. Gupta (ISM/ IIT Dhanbad) Member	ADS
10.	Dr. Jai Krishna Pandey Member	<i>J K Pandey</i> 26/4/19
11.	Dr. Manjari Srivastava Member	<i>Manjari</i> 26.4.19
12.	Dr. Gururaj P Kundargi Member	<i>Gururaj</i> 26/4/19
13.	Dr. S. Kerketta Member Secretary, MoEFCC	<i>S Kerketta</i> 26.4.2019

Approval of the Chairman

5/14/2019

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Subject: Re: Draft 27th MoM of Thermal Sector - reg.
To: Dr S Kerketta <s.kerketta66@gov.in>

Date: 05/11/19 04:51 PM
From: navin chandra <navinchandrarr1@yahoo.com>
Reply-To: navin chandra <navinchandrarr1@yahoo.com>

11/05/2019

Dear Dr. Kerketta,

I have gone through the Minutes of the meeting held for the month of April 2019. The Minutes are in order and may be uploaded on the web-site of MoEFCC.

Regards,

(NAVIN CHANDRA)

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
navinchandrarr1@yahoo.com, navinchandraampri@gmail.com

On Friday, 10 May, 2019, 7:37:28 pm IST, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Sir,

Comments received from Mr. Kundargi, Mr. Kamat, Mr. Mondal and Dr. Giri. All the comments have been included in the draft MoM. PFA for kind approval please.

—
regards,

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

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AGENDA OF 27th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON THERMAL POWER PROJECTS

DATE : 26 April, 2019

TIME : 10.30 A.M. ONWARDS

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

ITEM	
Item No. 27.0	CONFIRMATION OF MINUTES OF 26th EAC (THERMAL) MEETING
Item No.	CONSIDERATION OF PROJECTS
27.1 10.30 am- 11.15 am	Proposed Expansion of 726.6 MW (Unit-3&4: 2 x 363.3 MW) Gas Based Power Project at Village Palatana, Tehsil Kakraban, Gomti District, Tripura by M/s ONGC Tripura Power Company Ltd.-reg. Environmental Clearance. F.No. J-13012/02/2017-IA.II(T) & Proposal No. IA/TR/THE/97559/2006.
27.2 11.15 am- 11.45 am	1x660 MW Supercritical Thermal Power Plant existing Amarkantak Thermal Power Station (Phase-I&II: 290 MW), Village Chachai, Anuppur District, Madhya Pradesh by M/s MP Power Generating Company Ltd.- reg. ToR. F.No. J-13012/07/2019-IA.II(T) & Proposal No. IA/MP/THE/94619/2019.
27.3 11.45 am- 12.15 pm	Expansion by addition of 1x250 MW Lignite Based Barsingsar Thermal Power Plant at Village Barsingsar, Taluk Kolayat, District Bikaner, Rajasthan by M/s NLC India Ltd.-reg. extension of Validity of EC. F.No.J-13012/32/2008-IA.II(T) & Online no. IA/RJ/THE/17074/2011.
27.4 12.15 pm- 1.15 pm	3x800 MW Super-Critical TPP at Village Annupurna Khamar, Taluk Kamakhyanagar, Dhenkenal Distt., Odisha by M/s. Odisha Thermal Power Corporation Ltd.- reg. re-consideration of Environmental Clearance. F.No. 13012/43/2012-IA.II(T) & Proposal no. IA/OR/THE/10522/2012.
27.5 2.00 pm- 2.30 pm	1980 MW (3x660 MW) Coal based Thermal Power Plant at Village Bujbuja and Dokariya, Taluk Barhi and Vijayaraghavgarh, District Katni, Madhya Pradesh by M/s Welspun Energy Madhya Pradesh Ltd.-reg. extension of validity of EC. F.No. J-13012/98/2010-IA.II(T) & Proposal No. IA/MP/THE/17057/2010.
27.6 2.30 pm- 3.15 pm	2x67.5 MW Coal based Captive Thermal Power Plant, Village Annantpur, Tehsil Athagarh, District Cuttack, Odisha by M/s Bhubaneswar Power Private Ltd.-reg. re-consideration of temporary permission for transportation of coal by road. No. J-13012/91/2008-IA.II (T) & Online no. IA/OR/THE/10627/2008.
27.7	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.