

MINUTES OF THE 41st MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER & COAL MINING PROJECTS

The 41st Meeting of the reconstituted EAC (Thermal Power) was held on 27th August, 2015 in the Ministry of Environment, Forest & Climate Change at Teesta Meeting Hall, Vayu Wing, First Floor, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi-110003. The following members were present:

1. Prof. C.R. Babu - Vice Chairman (Acting Chairman)
2. Shri N.K. Verma - Member
3. Shri G.S. Dang - Member
4. Dr. S.D. Attri - Member (Representative of IMD)
5. Shri P.D. Siwal - Member (Representative of CEA)
6. Dr. S.S. Bala - Member (Representative of CPCB)
7. Shri B.B. Barman - Member Secretary

Shri T.K. Dhar, Shri J.L Mehta, Shri A.K. Bansal, Dr. C.B.S Dutt, Dr. Ratnavel and Dr. Asha Rajvanshi could not be present. List of other participants is at **Annexure-I**.

Item No.1: CONFIRMATION OF THE MINUTES OF THE 40th EAC (LAST) MEETING.

No comments/observations were received and therefore, the Minutes of the 40th EAC (Thermal Power) meeting held on 23rd July, 2015 were confirmed.

Item No. 2: CONSIDERATION OF PROJECTS

2.1 Change of fuel from Coal to Pet coke in 270 (3 X 90) MW Captive Co-generation Power Plant (CCPP) at Dahej, District Bharuch, Gujarat by M/s. Reliance Industries Limited. – reg. ToR

The Project Proponent (PP) along with their environmental Consultant, Bhagavathi Ana Labs, Hyderabad made a presentation and *inter-alia* provided the following information.

- (i) Dahej Manufacturing Division (DMD) of Reliance Industries Ltd. (RIL) is located in GIDC declared Industrial Area. DMD) is a multi-product, fully integrated petrochemicals complex. Presently, the power & steam requirement for the process plants is met by gas-based Captive Power Plant (CPP). To supplement this need, a Coal based CPP (270 MW-3x90 MW) is being installed for which EC was granted by SEIAA, Gujarat on 02.03.2015. The instant proposal is to change fuel from coal to pet coke in this CPP. In view of the capacity more than 50 MW (based on pet coke), the project becomes “A’ category and appraised at the Centre.
- (ii) No new construction or facilities are required as the proposal is only a switching of fuel from coal to pet coke. There is no requirement of additional investment. The technology shall remain the same i.e. CFBC as it has Fuel Flexibility, Reduced Emission, Compact Boiler, High Combustion efficiency etc. The land requirement and water requirement shall also remain same i.e. 38 Ha which is available within DMD and 1,200 m³/h (from River Narmada) respectively. The pet coke requirement is ~1.47 MTPA (100% pet coke) which shall be sourced from RIL, Jamnagar and other refineries. Since Pet Coke has more Sulphur, to quench SO_x, direct insitu lime injection into the boiler shall be done. Limestone of ~0.8 MTPA shall be sourced locally. No ash pond is proposed and utilization

of fly ash shall be as per the timelines given in the Fly Ash Utilization Notification. Covered fuel storage and closed conveying system shall be provided.

2. The PP requested to allow them to use the baseline data collected in 2014 and exempt them from conducting fresh Public Hearing as the Public Hearing was done prior to the EC obtained from SEIAA besides the project location being in GIDC area.

The Committee, while agreeing for exempting a full- fledged fresh Public Hearing, it asked the PP that a Public Notice in the News Papers be given informing the general public about the change in the fuel.

3. After further detailed deliberations, the Committee recommended the following ToR in addition to the standard TORs (as applicable) at **Annexure-A1** and **Annexure-A2** for undertaking detailed EIA study and preparation of EMP.

- i. Ultimate analysis of pet coke.*
- ii. Stack emission limit of 100 mg/Nm³ for SO₂ shall be complied by installation of the requisite Pollution Control Equipment (PCE). Further, the Sulphur capture shall be minimum 95%*
- iii. Data of the Air Quality monitored for the existing Plant shall be provided i.e. 104 observations as per the MoEF&CC Notification.*
- iv. Shall explore the feasibility of installing railway siding/conveyor system for transportation of fuel. In case of any delay in installation of railway siding/conveyor system, alternative transportation plan including impact due to road transportation, shall be studied and included in the EIA/EMP report. Effect of Transportation of Lime stone and Fly Ash.*
- v. The treated effluent quality shall be equal to or better than the estuarine water quality.*
- vi. Cumulative impact assessment of air quality.*
- vii. Cumulative impact assessment of the drawl of water and discharges on the downstream estuarine ecology and fisheries.*
- viii. Public Notice in the News Papers shall be given informing about the change in the fuel and enhanced capacity. The responses received shall be duly factored into and suitably addressed in the EIA/EMP.*

4. The EAC noted that the PP does have a valid EC obtained from the State Government for the project based on coal as fuel and the instant proposal is for change in fuel from coal to pet coke. Therefore, the PP/Ministry may take up the matter with the State Govt. as appropriate before issuance of ToR.

2.2 2x67.5 MW Coal Based Captive Thermal Power Plant at Village Anantapur, Tehsil Athagarh, District Cuttack, Odisha by M/s. Bhubaneswar Power Pvt. Ltd. – reg. amendment of EC for temporary permission for transportation of coal by road.

The PP along with their environmental Consultant, B.S. Envi-Tech Pvt. Ltd., Hyderabad made a presentation and *inter-alia* provided the following information.

- (i) EC and Consent to Establish (CTE) were accorded by MoEF and Odisha State Pollution Control Board (OSPCB) on 14.05.2010 and in August, 2010 respectively. The validity of EC was extended by MoEF&CC till 13.05.2017 to start the production/operations by the TPP. The CODs of Unit-I and II are scheduled for October/November, 2015 and March, 2016 respectively. Coal from Talcher coalfield, around 106 km from the proposed plant would be transported by Indian Railways using its existing railway system. A 2 km access railway line would be constructed to connect the project site to broad gauge railway line between Ghantikhal & Sarpeswar PH. However, the said railway siding is yet to be constructed. Rail Transport Clearance (RTC) was accorded on 23.10.2008. However, East Coast Railway has revised the take-off arrangement on 21.05.2014 and approval of revised DPR is under process. Temporary permission to use Raj Athagarh Railway siding was accorded on 13.08.2014.
- (ii) The present proposal is to transport the coal by road/rail&road until the private railway siding is commissioned, which shall take at least 3-4 years as per the discussions with the East Coast Railway. Two options have been studied for the temporary transportation of road/rail&road. The option 1 involves only road transportation from mine to the TPP over a total distance of 97 km via NH-42. The option 2 involves primarily rail transportation and road transportation over a distance of 16.78 km. The total quantity of coal required to be transported is 3,600 tonnes/day and no. of dumpers/trucks required are 90 considering 20 T/dumper and two trips per day. The number of dumpers that are likely to be distributed for every hour will be 15 as the transportation will be done only during the off peak hours i.e. 8 PM to 8 AM.
- (iii) The impact due to proposed road transportation of coal was studied as per IRC and it was observed that the proposed road transportation will not impact the traffic movement on the highway significantly. The proposed environmental protection measures during transportation of coal by road would include suppression of fugitive dust generation by spraying of water or by other suitable means, transportation of wetted and covered coal to prevent dust nuisance, proper maintenance and valid "Pollution Under Control Certificate" for all vehicles.

2. *Based on the information and clarifications provided, the detailed discussion that ensued and considering the status/progress of the project, the Committee recommended for **temporary permission for transportation of coal by road for a period of three years** subject to the following additional conditions.*

- i) Prior requisite approvals from the concerned State Authorities especially the PWD; shall be obtained.*
- ii) The proposed Option 1 i.e. entire road transportation from mine to the TPP shall be done only in case of emergency i.e. when Option 2 is not feasible due to non availability of rakes. The same shall be duly documented.*
- iii) Adequate road safety measures shall be provided for pedestrians and specifically for students near Schools. This should be done in consultation and approval of authorities concerned.*
- iv) Monitoring of air pollution and noise shall be carried out at least once in a month and submitted to Ministry's R.O. and SPCB.*

- v) *The transportation by road shall be through mechanically covered trucks to the extent feasible, else through trucks covered by tarpaulin.*
- vi) *Explore the possibility of upgrading road shoulders into pakka road in consultation with the State Govt.*
- vii) *Periodic maintenance of the road shall be done by the project proponent at its own expenses and shall also facilitate the traffic control on the road in consultation with the State Govt.*
- viii) *Avenue plantation of 2/3 rows all along the road shall be carried out by the project proponent at its own expenses in consultation with the State Govt.*
- ix) *The PP shall advertise in the local leading newspapers and place on the website, the temporary permission so accorded by the Ministry for public information.*

2.3 2x685 MW Super Critical Imported Coal Based TPP at Villages Raikheda, Gaitara and Chicholi, Block Talda, District Raipur, Chhattisgarh by M/s GMR Chhattisgarh Energy Ltd. –reg. amendment of EC for change in source of coal.

The PP along with their environmental Consultant, Vimta Labs, Hyderabad made a presentation and *inter-alia* provided the following information.

- (i) EC was accorded to the above project on 09.05.2011 considering imported coal (South Africa) as an interim arrangement till the domestic coal linkage is provided. The EC was later amended on 13.06.2013 for change in ash pond coordinates etc., on 18.11.2014 for temporary road transportation approval (from Railway siding to Plant) for 3 years and on 04.02.2015 for usage of Indonesian coal in addition to South African coal & blend of maximum 50% domestic E-auction Coal. The COD of Unit-I was declared on 01.06.2015 and the COD of Unit II is planned for 01.12.2015. All BOP packages such as CHP, AHP, WTP, Ash Pond, Switchyard etc. were commissioned.
- (ii) Based on coal mines (special provisions) second Ordinance, 2014 and the coal mines (special provisions) Rules 2014, Talabira-I and Ganeshpur coal mines have been vested over to the PP in the month of March-April,2015 during the coal blocks E-auction. Talabira-I is located in Ib Valley Coal field, Sambalpur District of Odisha and Ganeshpur is located in North Karanpura Coalfield, Latehar District of Jharkhand. All clearances and approval for coal mines are in place. Hence, it is requested to amend the EC for usage of 100% Domestic Coal sourced from Talabira-I and/or Ganeshpur Coal mine, alternatively usage of 50% Blended coal in the worst case scenario, as already approved by MoEF&CC.
- (iii) The coal Transportation Talabira-I and Ganeshpur coal mines will be through Rail. Talabira-I coal mines having its nearest siding at Hirakud is well connected with Plant via Samabalpur-Jharsugda-Raigarh-Tilda-Plant. Ganeshpur coal mines having its nearest siding at Tori is well connected with Plant via Tori-Barkhakhana-Rourkela-Jharsugda-Tilda-Plant.
- (iv) The EIA/EMP prepared prior to the EC was based on both 100% domestic and imported coal. Since the same coal characteristics are envisaged, no significant additional impacts

are envisaged with the use of 100% domestic coal. The GLCs shall be within NAAQ standard limits.

2. *Based on the information and clarifications provided, the detailed discussion and considering the status/progress of the project, the Committee recommended **amendment of EC for usage of 100% Domestic Coal sourced from Talabira-I &/or Ganeshpur Coal mine, and in the worst case scenario, usage of 50% Blended Coal as approved earlier** subject to the following additional conditions.*

- i) *The Sulphur and ash content of coal shall not exceed 0.7 % and 41.6 % respectively subject to the compliance of the Ministry's Notification dated 02.01.2014 regarding restriction of ash content of coal. In case of variation of quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to the environmental clearance.*
- ii) *The PP shall advertise in the local leading newspapers and place on the website, the proposed amendment of EC (after receipt from the Ministry) for change in source of coal for public information.*

2.4 2x600 MW Coal Based TPP at Villages Singhitarai, Benipali, Odekera & Nimohi, Tehsil Dabhara, District Janjgir-Champa, Chhattisgarh by M/s Athena Chhattisgarh Power Ltd.- reg. extension of validity of EC.

The PP along with their environmental Consultant, B.S. Envi-Tech Pvt. Ltd., Hyderabad made a presentation and *inter-alia* provided the following information.

- (i) EC and CTE to the above project were accorded by MoEF and SPCB on 04.06.2010 and on 02.08.2010 respectively. The Financial Closure was achieved in October, 2011 and the project construction has also commenced in October, 2011. An overall 85% of works in the Power Project were completed. The detailed progress of various units/facilities including green belt (82% completed) along with photographs was presented. The CODs of Unit-I and Unit-II are planned for March, 2016 and June, 2016 respectively. An expenditure of about Rs.5,055 Crores (upto July, 2015) was incurred out of the project cost of Rs. 6,200 Crores and an amount of Rs. 11.99 Crores was incurred on CSR activities. The balance amount of the capital cost of CSR as per EC shall be spent during the construction phase.
- (ii) The reasons for delay in executing the project are, the delay in Approvals/ Statutory Clearances from Chhattisgarh State and Government of India, delay in Land Acquisition, uncertainty on Fuel Supply front, poor Economic Scenario resulting in bad Investment sentiment, delay in disbursement by Financial Institutions due to delays in approvals, extended Monsoon during the Years 2012 & 2013 and slowdown in work due to lack of local labour in view of Panchayat/State and Central Elections.
- (iii) The Committee also discussed the issues raised by ERC, New Delhi in their letter dated 26.08.2015 and the response of the PP to the same.

2. *Based on the information and clarifications provided, the detailed discussion and considering the status/progress of the project, the Committee recommended **Extension of Validity of EC for two years i.e. 03.06.2017 to start the production/operations by the TPP.** The Committee also recommended that additional conditions which were earlier not prescribed but relevant now be stipulated while issuing the extension of validity.*

2.5 5x270 MW coal based TPP at Sinnar Industrial Area, District Nasik, Maharashtra by M/s RattanIndia Nasik Power Ltd. - reg. extension of validity of EC and amendment of EC for temporary permission for transportation of coal by road.

The PP along with their environmental Consultant, GreenIndia, Ghaziabad made a presentation and *inter-alia* provided the following information.

- (i) EC to the above project was accorded on 28.07.2010 and the same was amended for transportation of coal by road on 25.08.2014 for one year with a direction to conduct Traffic Study within one year for further extension. CTE was accorded by SPCB on 29.06.2010 and Consent to Operate (CTO) was accorded on 18.07.2013 for Unit 1 & 2 (2 x 270 MW) & renewed on 28.07.2015. The Unit 1 was commissioned on 29.03.2014 and the commissioning activities of Unit 2 are going on. The detailed progress of various units/facilities including green belt along with photographs was presented. The CODs of Unit 2, Unit 3, Unit 4 and Unit 5 are scheduled for 01.03.2016, 01.10.2017, 01.03.2018 and 01.03.2019 respectively. Construction of dedicated railway line is likely to take four years. An expenditure of Rs. 23.59 Crores was made on CSR activities till July, 2015.
- (ii) The project got delayed due to unavoidable reasons such as Right of Way (RoW) issues for land of railways, water pipe-line, transmission line etc., restrictions on sand mining and non-availability of PPA.
- (iii) As directed by the EAC/Ministry, detailed traffic study of the proposed routes of coal transportation was conducted and the report submitted. It has been concluded that out of the proposed four routes, three routes require capacity augmentation at certain sections. It may be noted that the capacity augmentation of the said routes is required even without the road transportation for the TPP. The introduction of the TPP will not have much impact on the road capacity.

2. *Based on the information and clarifications provided, the detailed discussion and considering the status/progress of the project, the Committee recommended **Extension of Validity of EC for five years i.e. 27.07.2020 to start the production/operations by the TPP and temporary permission for transportation of coal by road for another two years** subject to the following additional conditions.*

- i) Prior requisite approvals from the concerned Authorities shall be obtained.*
- ii) Adequate road safety measures shall be provided for pedestrians and specifically near Schools.*
- iii) Monitoring of air pollution and noise shall be carried out at least once in a month and submitted to Ministry's R.O. and SPCB.*
- iv) The PP shall take up the matter of capacity augmentation of the Routes with the State Government and shall also facilitate the same.*
- v) The PP shall advertise in the local leading newspapers and place on the website, the extension of validity and amendment of EC (after receipt from the Ministry) for public information.*

2.6 1x660 MW Super Critical Coal Thermal Power Plant at Villages Sasthavinallur, Pallakkurichi and Adiyakurichi, Taluka Sattankulam, Tuticorin District in Tamil Nadu by M/s. Ind- Barath Power (Madras) Ltd.- reg. extension of validity of EC

The PP made a presentation and *inter-alia* provided the following information.

- (i) EC and CTE to the above project were accorded by MoEF and SPCB on 12.07.2010 and on 17.10.2013 respectively. EPC contract was awarded in December, 2010 and the first Financial Closure was done in October, 2011. However, due to changes in Industry & Capital Market for Power Sector, Banks were not able to disburse Loan and backed out. The complete Financial Closure could be achieved only in February, 2015. The PP thereafter, started work in full swing. The progress of various units/facilities along with photographs was presented. Civil foundations were completed. An amount of Rs. 1,050 crores has been spent on the project till date. The detailed project schedule for completion of the project by 1st quarter of 2019 is submitted.

2. *The Committee noted that the PP has made an application for extension after the five years period. Hence, the Ministry may do the needful.*

3. *Based on the information and clarifications provided, the detailed discussion and considering the status/progress of the project, the Committee recommended **Extension of Validity of EC for five years i.e. 11.07.2020 to start the production/operations by the TPP.** The Committee also recommended that additional conditions which were earlier not prescribed but relevant now be stipulated while issuing the extension of validity.*

2.7 1x660 MW Super Critical Coal Based Thermal Power Plant at Village Gorgi, Taluk Deosar, District Singrauli, Madhya Pradesh by M/s D.B. Power (Madhya Pradesh) Ltd. – reg. extension of validity of EC.

The PP along with their environmental Consultant, EMTRC, Delhi made a presentation and *inter-alia* provided the following information.

- (i) EC and CTE to the above project were accorded by MoEF and SPCB on 09.09.2010 and on 14.11.2011 respectively. The entire land (735 acres) required for the project has been acquired. The Power Purchase Agreement (PPA) was signed with Govt. of Madhya Pradesh on 05.01.2011 and as per the PPA, scheduled COD is October, 2018. The progress of various units/facilities including green belt along with photographs was presented. An expenditure of Rs. 491.32 Crores and Rs. 7.14 Crores was incurred on the project and on CSR activities respectively upto 31.03.2015. There is no litigation pending against the project.

- (ii) The reasons for delay in implementing the project are, the delay in allotment of Govt. land, non viability in implementation of single Unit, EC for second Unit linked to firm fuel source and disbursement of loan/credit due to EC for single Unit.

2. *Based on the information and clarifications provided, the detailed discussion and considering the status/progress of the project, the Committee recommended **Extension of Validity of EC for five years i.e. 08.09.2020 to start the production/operations by the TPP.** The Committee also recommended that additional conditions which were earlier not prescribed but relevant now be stipulated while issuing the extension of validity.*

3.0 Any Other Item With The Permission Of The Chair.

3.1 3,200 (4X800) MW Dahej TPP at GIDC Dahej, near Village Suva, Taluka Vagra, District Bharuch, Gujarat by M/s Adani Power Dahej Ltd. – reg. ToR

The PP along with their environmental Consultant, GreenIndia, Ghaziabad made a presentation and *inter-alia* provided the following information.

- (i) Adani Power Dahej Limited was granted EC on 25.10.2011 for 4 x 660 MW (2,640 MW). However, the PP could not construct the power plant except for site preparation in absence of PPA from Centre and State Government. Now, it is proposed to go for fresh ToR and change of configuration of the project from 4 x 660 MW to 4 x 800 MW. The project site is located in Dahej GIDC area and the proposed Petroleum, Chemical & Petrochemical Investment Region (PCPIR) by GIDC. The total land requirement is 1072 acres (433.82 ha). Out of 1072 acres, 832 acres land is already in possession of the PP while 240 acres is in advanced stage of allocation to the PP by GIDC. The Project is more than 150 m away from High Tide Line (HTL) and 150 m from the HTL Line is a landward boundary of the CRZ along the bank of Narmada Estuary (750 m). No R&R issues are involved. No Wildlife Sanctuary, National Parks and Archeological Monuments exists within 15 km radius of the project site. Power shall be sold to State Utilities/ other beneficiaries at 765 KV level through existing / proposed State Grid & Power Grid Corporation of India Limited –PGCIL system (STU/CTU). The project cost is Rs. 19,200 Crores (Approximately)
- (ii) The coal requirement is 15.07 MTPA of blended coal (Domestic-70% and Imported-30%) considering a GCV of 3,600 kcal/kg at 90% PLF. The water requirement (25,000 cum/hr or 216 MCM) will be met from Narmada Estuary located on southern side of proposed TPP about 1.0 km distance which is a perennial source of water. Gujarat Maritime Board has granted in principal approval for drawl of 25,000 cum/hr water from the Narmada Estuary.

2. *Regarding Public Hearing (PH) exemption due to location in GIDC area and PCPIR, the Committee noted that PH for PCPIR was held in April, 2015 and hence, the same may be looked into by the Ministry after the receipt of EC for PCPIR, which shall also include the proposed TPP.*

3. *After detailed deliberations, the Committee recommended the following ToR in addition to the standard TORs (as applicable) at **Annexure-A1** and **Annexure-A2** for undertaking detailed EIA study and preparation of EMP.*

- i. Explore the possibility of location of intake and outfall points in the Sea and not in the Estuary.*
- ii. The treated effluent quality shall be equal to or better than the estuarine water quality.*
- iii. Cumulative impact assessment of air quality.*
- iv. Cumulative impact assessment of the drawl of water and discharges on the downstream estuarine ecology and fisheries.*

4. *The Committee also recommended that the PP shall first apply for cancellation of the existing EC dated 25.10.2011 to the Ministry and only upon cancellation of the said EC by the Ministry, the fresh ToR as recommended may be issued.*

There being no agenda item left, the meeting ended with a vote of thanks to the Chair.
The next meeting of the EAC (Thermal Power) is scheduled for **18th September, 2015.**

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 for the conditions stipulated in the environmental and CRZ clearances of the previous phase(s) for the expansion projects shall be submitted.
- iv) The project proponent needs to identify minimum three potential sites based on environmental, ecological and economic considerations, and choose one appropriate site having minimum impacts on ecology and environment. A detailed comparison of the sites in this regard shall be submitted.
- v) Executive summary of the project indicating relevant details along with recent photographs of the proposed site (s) shall be provided. Response to the issues raised during Public Hearing and the written representations (if any), along with a time bound Action Plan and budgetary allocations to address the same, shall be provided in a tabular form, against each action proposed.
- vi) Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and for expansion projects, status of implementation shall also be submitted.
- vii) The geographical coordinates (WGS 84) of the proposed site (plant boundary), including location of ash pond along with topo sheet (1:50,000 scale) and IRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/River and high tide level from the sea shall be specified, if the site is located in proximity to them.
- viii) Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.
- ix) Land requirement for the project shall be optimized and in any case not more than what has been specified by CEA from time to time. Item wise break up of land requirement shall be provided.
- x) Present land use (including land class/kism) as per the revenue records and State Govt. records of the proposed site shall be furnished. Information on land to be acquired including coal transportation system, laying of pipeline, ROW, transmission lines etc. shall be specifically submitted. Status of land acquisition and litigation, if any, should be provided.
- xi) If the project involves forest land, details of application, including date of application, area applied for, and application registration number, for diversion under FCA and its status should be provided along with copies of relevant documents.
- xii) The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.
- xiii) Satellite imagery and authenticated topo sheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest habitations (villages), creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.
- xiv) Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized by him.

- xv) Topography of the study area supported by toposheet on 1:50,000 scale of Survey of India, along with a large scale map preferably of 1:25,000 scale and the specific information whether the site requires any filling shall be provided. In that case, details of filling, quantity of required fill material; its source, transportation etc. shall be submitted.
- xvi) A detailed study on land use pattern in the study area shall be carried out including identification of common property resources (such as grazing and community land, water resources etc.) available and Action Plan for its protection and management shall be formulated. If acquisition of grazing land is involved, it shall be ensured that an equal area of grazing land be acquired and developed and detailed plan submitted.
- xvii) A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on potentially mineable mineral deposit shall be submitted.
- xviii) Details of fly ash utilization plan as per the latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash.
- xix) The water requirement shall be optimized (by adopting measures such as dry fly ash and dry bottom ash disposal system, air cooled condenser, concept of zero discharge) and in any case not more than that stipulated by CEA from time to time, to be submitted along with details of source of water and water balance diagram. Details of water balance calculated shall take into account reuse and re-circulation of effluents.
- xx) Water body/Nallah (if any) passing across the site should not be disturbed as far as possible. In case any Nallah / drain is proposed to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of proposed diversion shall be furnished duly approved by the concerned Department of the State.
- xxi) It shall also be ensured that a minimum of 500 m distance of plant boundary is kept from the HFL of river system / streams etc. and the boundary of site should also be located 500 m away from railway track and National Highways.
- xxii) Hydro-geological study of the area shall be carried out through an institute/ organization of repute to assess the impact on ground and surface water regimes. Specific mitigation measures shall be spelt out and time bound Action Plan for its implementation shall be submitted.
- xxiii) Detailed Studies on the impacts of the ecology including fisheries of the River/Estuary/Sea due to the proposed withdrawal of water / discharge of treated wastewater into the River/Sea etc shall be carried out and submitted along with the EIA Report. In case of requirement of marine impact assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.
- xxiv) Source of water and its sustainability even in lean season shall be provided along with details of ecological impacts arising out of withdrawal of water and taking into account inter-state shares (if any). Information on other competing sources downstream of the proposed project and commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter / document stating firm allocation of water.
- xxv) Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished.
- xxvi) Feasibility of near zero discharge concept shall be critically examined and its details submitted.
- xxvii) Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.

- xxviii) Plan for recirculation of ash pond water and its implementation shall be submitted.
- xxix) Detailed plan for conducting monitoring of water quality regularly with proper maintenance of records shall be formulated. Detail of methodology and identification of monitoring points (between the plant and drainage in the direction of flow of surface / ground water) shall be submitted. It shall be ensured that parameter to be monitored also include heavy metals. A provision for long-term monitoring of ground water table using Piezometer shall be incorporated in EIA, particularly from the study area.
- xxx) Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out through a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of the local communities.
- xxxi) Action Plan for identification of local employable youth for training in skills, relevant to the project, for eventual employment in the project itself shall be formulated and numbers specified during construction & operation phases of the Project.
- xxxii) If the area has tribal population it shall be ensured that the rights of tribals are well protected. The project proponent shall accordingly identify tribal issues under various provisions of the law of the land.
- xxxiii) A detailed CSR plan along with activities wise break up of financial commitment shall be prepared. CSR component shall be identified considering need based assessment study and Public Hearing issues. Sustainable income generating measures which can help in upliftment of affected section of society, which is consistent with the traditional skills of the people shall be identified. Separate budget for community development activities and income generating programmes shall be specified.
- xxxiv) While formulating CSR schemes it shall be ensured that an in-built monitoring mechanism for the schemes identified are in place and mechanism for conducting annual social audit from the nearest government institute of repute in the region shall be prepared. The project proponent shall also provide Action Plan for the status of implementation of the scheme from time to time and dovetail the same with any Govt. scheme(s). CSR details done in the past should be clearly spelt out in case of expansion projects.
- xxxv) R&R plan, as applicable, shall be formulated wherein mechanism for protecting the rights and livelihood of the people in the region who are likely to be impacted, is taken into consideration. R&R plan shall be formulated after a detailed census of population based on socio economic surveys who were dependant on land falling in the project, as well as, population who were dependant on land not owned by them.
- xxxvi) Assessment of occupational health and endemic diseases of environmental origin in the study area shall be carried out and Action Plan to mitigate the same shall be prepared.
- xxxvii) Occupational health and safety measures for the workers including identification of work related health hazards shall be formulated. The company shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in non-conducive environment shall be carried out and precautionary measures like use of personal equipments etc. shall be provided. Review of impact of various health measures undertaken at intervals of two to three years shall be conducted with an excellent follow up plan of action wherever required.
- xxxviii) One complete season site specific meteorological and AAQ data (except monsoon season) as per latest MoEF Notification shall be collected and the dates of monitoring shall be recorded. The parameters to be covered for AAQ shall include 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 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.
- xl ii) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
- xl iii) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
- xl iv) 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
- xl v) 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.
- xl vi) 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.
- xl vii) 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.
- xl viii) 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.
- xl ix) 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.

Additional TOR for Coastal Based TPPs:

Over and above the TOR mentioned in **Annexure- A1**, the following shall be strictly followed (as applicable):

- a) Low lying areas fulfilling the definition wetland as per Ramsar Convention shall be identified and clearly demarcated w.r.t the proposed site.
- b) If the site includes or is located close to marshy areas and backwaters, these areas must be excluded from the site and the project boundary should be away from the CRZ line. Authenticated CRZ map from any of the authorized agencies shall be submitted.
- c) The soil leveling should be minimum with no or minimal disturbance to the natural drainage of the area. If the minor canals (if any) have to be diverted, the design for diversion should be such that the diverted canals not only drains the plant area but also collect the volume of flood water from the surrounding areas and discharge into marshy areas/major canals that enter into creek. Major canals should not be altered but their embankments should be strengthened and desilted.
- d) Additional soil required for leveling of the sites should as far as possible be generated within the site itself in such a manner that the natural drainage system of the area is protected and improved.
- e) Marshy areas which hold large quantities of flood water to be identified and shall not be disturbed.
- f) No waste should be discharged into Creek, Canal systems, Backwaters, Marshy areas and seas without appropriate treatment. Wherever feasible, the outfall should be first treated in a Guard Pond and then only discharged into deep sea (10 to 15 m depth). Similarly, the Intake should be from deep sea to avoid aggregation of fish and in no case shall be from the estuarine zone. The brine that comes out from Desalinization Plants (if any) should not be discharged into sea without adequate dilution.
- g) Mangrove conservation and regeneration plan shall be formulated and Action Plan with details of time bound implementation shall be specified, if mangroves are present in Study Area.
- h) A common **Green Endowment Fund** should be created by the project proponents out of EMP budgets. The interest earned out of it should be used for the development and management of green cover of the area.
- i) Impact on fisheries at various socio economic level shall be assessed.
- j) An endowment **Fishermen Welfare Fund** should be created out of CSR grants not only to enhance their quality of life by creation of facilities for Fish Landing Platforms / Fishing Harbour / cold storage, but also to provide relief in case of emergency situations such as missing of fishermen on duty due to rough seas, tropical cyclones and storms etc.
- k) Tsunami Emergency Management Plan shall be prepared wherever applicable and Plan submitted prior to the commencement of construction work.
- l) There should not be any contamination of soil, ground and surface waters (canals & village pond) with sea water in and around the project sites. In other words necessary preventive measures for spillage from pipelines, such as lining of Guard Pond used for the treatment of outfall before discharging into the sea and surface RCC channels along the pipelines of outfall and intake should be adopted. This is just because the areas around the projects boundaries could be fertile agricultural land used for paddy cultivation.

(Prof. C.R. Babu)
Vice Chairman (Acting Chair)

(Shri N.K. Verma)
Member

(Shri G. S. Dang)
Member

(Dr. S. D. Attri)
Member

(Shri P.D. Siwal)
Member

(Shri S.S. Bala)
Member

(Shri B.B. Barman)
Member Secretary

List of Participants

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2.7 M/s D.B. Power (Madhya Pradesh) Ltd.

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