

MINUTES OF THE 38th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER & COAL MINING PROJECTS

The 38th Meeting of the reconstituted EAC (Thermal Power) was held on **25th-26th June, 2015** at Teesta Meeting Hall, Vayu Wing, First Floor, Indira Paryavaran Bhawan (New Building), Jorbagh Road, New Delhi-110003. The members present were:

1. Prof. C.R. Babu - Vice Chairman (Acting Chair)
2. Shri T.K. Dhar - Member
3. Shri A.K. Bansal - Member
4. Shri J.L Mehta - Member
5. Shri N.K. Verma - Member
6. Dr. S.D. Attri - Member (Representative of CPCB)
7. Shri P.D. Siwal
& Shri N.S. Mondal - Member (Representative of CEA)
8. Shri B.B. Barman - Member Secretary

Shri G.S. Dang, Dr. C.B.S Dutt, Dr. S.S. Bala, Dr. Ratnavel and Dr. Asha Rajvanshi could not be present. At the outset, the Committee recollected the excellent contribution of the outgoing Member Secretary, Ms. Sanchita Jindal and expressed their gratitude. List of other participants is at **Annexure -I**.

The Committee also welcomed the newly appointed Member Secretary, Shri B.B. Barman. Thereafter, the following agenda items were taken up:

Item No.1: CONFIRMATION OF THE MINUTES OF THE LAST MEETING.

As no comments/observations were received, the Minutes of the 36th EAC (TP) meeting held during 19th-20th May, 2015 were confirmed.

Item No. 2: CONSIDERATION OF PROJECTS

2.1 2x800 MW Uppur Supercritical Thermal Power Plant at Villages Uppur, Valamavoor & Thiruppalaikudi, Tehsil Tiruvadana, District Ramanatahapuram, Tamil Nadu by M/s Tamil Nadu Generation & Distribution Corporation Ltd. (TANGEDCO) – For EC.

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

- (i) ToR for carrying out EIA study and preparation of EMP for the above proposal was accorded by the Ministry on 28.05.2012 and the validity of TOR was extended up-to 27.5.2015 vide letter 08.09.2014. Public Hearing for the project was conducted on 04.07.2014. TANGEDCO have prepared the CRZ Maps through Institute of Remote Sensing, Anna University, Chennai. The State Coastal Zone Management Authority (SCZMA) recommended the proposal in its meeting held on 27.11.2014 and communicated the same to National Coastal Zone Management Authority (NCZMA) vide letter dated 16.12.2014, where its consideration is awaited.
- (ii) The total project area is 1013 acres which includes ash pond and green belt. The Administrative Sanction has been issued by Govt. of Tamil Nadu for land acquisition.

Survey works have been completed. On obtaining EC, land acquisition process will be initiated. No R&R issues are involved in the land acquisition. No further expansion is envisaged due to non-availability of land etc. There are no National Parks, Sanctuaries, Elephant/Tiger Reserves, migratory routes/wildlife corridors, etc., within 10 km of the project site. Authenticated Map has been obtained from the Principal Chief Conservator of Forests and Chief Wildlife Warden. Gulf of Mannar Marine National Park is about 60 km aerial distance from the site. The proposed project site is at a distance of 28 km north of Ramanathapuram on the western side of East Coast Road, which is at a distance of about 600 m from the project site. The NH-210 is at a distance of 4 km west. The nearest Port is Tuticorin at a distance of 140 km south. The project site is located at about 1 km from the HTL, 500 m away from HTL of Palk Bay and about 2.5 km from HFL of Peyar River. Nearest Railway is Ramanathapuram at a distance of 28 km. The project cost is Rs.12,664.76 Crores (approx). The capital and recurring cost towards EMP is Rs. 478 Crores and 48 Crores respectively.

- (iii) It is proposed to use 100% imported coal (5.02 MTPA) for the project with maximum sulphur and ash contents of 0.8% and 10% respectively. MOU has been signed with M/s. MMTC on 25.05.2015 for supply of imported coal. Radio activity and heavy metal contents of coal to be sourced have been tested and the parameters are well within limits. The feasibility of transportation of coal for the Project has been carried out through M/s. RITES. Based on the report, it has been proposed to transport coal from Tuticorin Port Trust to the Project site through the existing railway line from Tuticorin - Vanchi Maniyachi - Manamadurai - Ramanathapuram and then a siding of 25.8 km from Ramanathapuram to Thiruppalaikudi and then take off to the power plant.
- (iv) The Ambient Air Quality (AAQ) was monitored during July - September, 2012. There are no existing/proposed industries in 10 km radius study area. The maximum base line concentration for PM₁₀, SO₂ and NO_x was 66.6 µg/m³, 15.4 µg/m³ and 18.9 µg/m³ respectively. The maximum incremental concentration of PM₁₀, SO₂ and NO_x would be 0.8 µg/m³, 35.32 µg/m³ and 14.6 µg/m³ respectively. Final GLC of all these will be within the prescribed AAQ limits.
- (v) The total sea water requirement for the Power Plant is about 15,376 m³/h and the cooling water discharge into the sea is 10,508 m³/h. COC of 1.3 has been proposed to optimize water usage. Desalination plant (11 MLD Capacity) is proposed for plant water, service water and potable water requirement of the plant and for supply of drinking water to nearby villages. Closed cycle cooling system with Natural Draft Cooling Towers (2 no.) is proposed. Roof tops as well as surface rain water harvesting will be implemented in the proposed plant site. The stored rainwater will be used for green belt development and dust suppression within the plant premises. Brine from the desalination plant and cooling tower blow down will be discharged into the sea after proper dilution. All other effluents will be treated in ETP/STP and utilized within plant premises. It is proposed to implement recirculation of ash pond water.
- (vi) The Hydro-geological study was carried out through Anna University, Chennai. Based on the geological details of Thiruvadana Taluk area, average safe depth of de-silting is from 0.30 m to 0.60 m. By desilting, the average increase in tank capacity will be about 20% to 40%. The channel of Naganendhal big tank is passing through the proposed plant area. Based on Hydrogeological study report, it is proposed to desilt and deepen the nearby tanks so that the water received from the water shed is stored in the tanks. Further, it is proposed to connect both Naganendhal big tank and Valamavur tank (2.2

km long and 6 m wide) so that the excess water can be diverted and connected to the Peyar River in the southern side of the plant boundary.

- (vii) The Temperature and Salinity Dispersion Modelling Study for drawl and discharge of sea water has been carried out through M/s. IIT Madras. The temperatures in the sea will rise by about 0.5-0.75°C within a radius of 2.0 km. Salinity will rise by about 4 ppt within 1.5 km distance from outfall. Beyond this, ambient conditions will be preserved. The intake/outfall pipelines will be laid over RCC Deck supported by concrete pillars. Height of Deck above Chart Datum will be 7.5 m and this will ensure free movement of fishing vessels. Considering Fish escape velocity of 0.15 m/sec, the Diameter of Intake Well is fixed as 14 m, with offshore pump house. The location of Intake Well is 5.0 Km from LTL and at 4.0 m water depth. The location of Outfall is 7 km at 5.0 m water depth.
- (viii) The Marine EIA Study has been carried out through M/s. WAPCOS. Field survey was conducted for three seasons i.e., June 2013, September 2013 and January 2014 for primary data generation on various aspects of marine water quality and ecology. 15 Nos. marine sampling points were selected in Thiruppalakudi and Uppur coastal villages. The Marine samples were collected and tested by a team of experts from the Centre of Advanced Study in Marine Biology of Annamalai University. The results of the survey indicate that the water is well oxygenated and nutrients are adequate supporting good plankton population, the base in the food chain. Similarly, the levels of heavy metals and petroleum hydrocarbon were found to be below permissible level in all the seasons. The outfall of the proposed TPP would not change the quality of existing natural coastal environment. The rise in temperature is not likely to cause any alteration in the biotic community of the coastal waters of the project area.
- (ix) The total ash generation is only 0.502 MTPA (1,375 Tonnes/day). 100% fly ash utilization is proposed. Many Cement Companies, viz., M/s. Tamil Nadu Cements, M/s. Dalmia Cements Ltd., M/s. Malabar Cements Ltd., M/s. Ultra Tech Cements Ltd., and M/s. Chettinad Cement Company Ltd., have furnished their expression of interest for off take of fly ash. The fly ash from the other running Units is being sold by e-auction and the same is proposed for the instant Unit. TANGEDCO will encourage small scale industry development in the industrially backward region by supplying fly ash to brick manufacturers. Ash Dyke of 138 acres has been provided within the Plant area for disposal of bottom ash in slurry form and the ash dyke will be lined with geomembrane.
- (x) Detailed Socio-economic & Community Needs Assessment study has been conducted through M/s. Madras School of Social Work, Chennai. Based on the Community Needs Assessment, TANGEDCO has earmarked Rs. 38.0 crores and Rs. 3.0 crores as Capital Cost and recurring cost per annum for CSR respectively.
- (xi) Public Hearing/Public Consultation for the project was conducted by Tamil Nadu Pollution Control Board on 04.07.2014. It was noted that the issues raised in the PH pertained to land acquisition not as per the 2013 Act, coal transportation, water source & availability, green belt, higher compensation for land, employment for land losers, effect on the livelihood of the fishermen, CRZ clearance not available, CSR activities etc. The Committee discussed the issues raised in the PH and the reply of the PP.

2. The Committee inter-alia, noted that as per the O.M. dated 03.02.2015, the PP needs to apply online for CRZ clearance to the Ministry. The Committee shall consider the comments/remarks of CRZ sector of the Ministry as and when would be made available. Further, as per the Ministry's O.M. dated 7.10.2014, a preliminary Notification issued by the State Govt. regarding acquisition of land as per the provisions of Land Acquisition, R&R Act, 2013 is mandatory and needs to be submitted. After further and detailed deliberations, the Committee sought the following information/ documents:

- I. Pictures and location of the creeks in a legible map.
- II. Action plan for harnessing solar power.
- III. Revised layout clearly depicting the various Units and facilities.
- IV. Clarification that the community land is not being acquired as per the definition of the State Govt.
- V. Commitment for development of thick green belt of minimum 50 m width between the ash pond and village tanks.
- VI. Notification issued by the State Govt. regarding acquisition of land as per the provisions of relevant act/rules.
- VII. Explore the possibility of making an embankment without raising the level of the project site.
- VIII. Letter from competent Port and Railway authorities for handling & transportation of the coal.
- IX. The transportation of coal shall be by Rail only. The PP shall take up the matter of transportation of coal by the shortest route which would save journey of around 100 km.
- X. Diversion of existing Nalahs shall be done in such a way that it shall not dry up the creeks and it shall be ensured that water flows perennially in the creeks so as to preserve the mangroves. Anna University, who has conducted the hydro-geological study, shall present the same in the next meeting.
- XI. The water quality data was not properly presented. Hence, the same needs to be done for the fresh water and sea water.
- XII. Details of proposed e-auction for fly ash, the LoIs from prospective takers along with quantities etc. to be submitted.
- XIII. Explore various avenues for utilization of bottom ash.
- XIV. Revised and detailed budgetary action plan for Public Hearing issues
- XV. Employment potential for locals.
- XVI. Detailed reply to the issues raised by ERC, New Delhi

- XVII. *Borrowing of earth should be avoided and efforts be made to balance cutting and filling in the project area/ site.*
- XVIII. *In order to maintain tranquility and sanctity of the creek area by ensuring bare minimum disturbances, proposed sea-ward pipe line shall have to be realigned.*
- XIX. *Concerns were expressed on the high PH of water which needs to be dealt extensively in EIA.*

On receipt of the above documentation and information, the case will be placed before EAC for reconsideration.

2.2 Expansion by addition of 1x800 MW (Stage-III), North Chennai TPP at Villages Ennore & Puzhuvakkam, Taluk Ponneri, District Thiruvallur, Tamil Nadu by M/s Tamil Nadu Generation & Distribution Corporation Ltd. (TANGEDCO)- For EC.

The PP along with their environmental consultant, Ramky Enviro Engineers Ltd., Hyderabad, made a presentation and *inter-alia*, provided the following information:

- (i) ToR for carrying out EIA study and preparation of EMP for the above proposal was accorded by the Ministry on 28.05.2012 and the validity of TOR was extended upto 27.5.2015 vide letter 08.09.2014. Public Hearing was conducted on 05.03.2015. Demarcation of site was done by Institute of Remote Sensing, Anna University, in 1:4000 scale including CRZ Zonation / land use for 7 km radius around the project site. The State Coastal Zone Management Authority (SCZMA) recommended the foreshore facilities viz. coal conveyor and cooling water inlet/outlet pipe lines to MoEF in the meeting held on 19.05.2015. Certified compliance report from the Ministry's Regional Office (R.O) for the conditions stipulated in the ECs of the existing Units was submitted and the compliance is found to be satisfactory.
- (ii) The land requirement for the proposed expansion is 76.9 Ha (190 acres), which is located inside the NCTPS complex. Entire land is under possession of TANGEDCO. There are no R&R issues. No further expansion is envisaged. There are no National Parks, Sanctuaries, Elephant/Tiger Reserves, Migratory Routes/Wildlife Corridors within 10 km of the project site. The site is 500 m away from High Tide Line (HTL) of Sea and 100 m away from the HFL of canal. The project site is a graded area with necessary drains developed during execution of NCTPS Stage I project (3x210 MW). The capital and recurring cost towards EMP is Rs. 480 Crores and 48 Crores respectively.
- (iii) The imported coal requirement of 2.09 MTPA with maximum sulphur and ash contents of 0.8% and 12% respectively will be sourced through MMTC, New Delhi. Ennore Port is establishing Coal Berth 3 (CB 3) exclusively for the use of TANGEDCO in addition to existing Coal Berth 1 & 2. It is proposed to transport coal from CB 3 to the NCTPS Stage III plant site through closed belt conveyors since the coal conveyor route is well within Port and Power plant area alone. Radio activity and heavy metal contents of coal to be sourced have been tested and the parameters are well within limits.
- (iv) The Ambient Air Quality (AAQ) was monitored during June – August, 2012. The maximum base line concentration for PM₁₀, SO₂ and NO_x was 94.4 µg/m³, 15.8 µg/m³ and 37.7 µg/m³ respectively. The maximum cumulative incremental concentration of

PM₁₀, SO₂ and NO_x would be 1.4 µg/m³, 61 µg/m³ and 41 µg/m³ respectively. Final GLC of all these will be within the prescribed AAQ limits.

- (v) The potable water of about 9 MLD required for the plant will be met by treating sea water in R.O. based desalination plant. The sea water (1,65,600 KLD) will be sourced Ennore port basin via existing intake channel of NCTPS Stage II. COC of 1.3 has been proposed to optimize water usage. The domestic wastewater from plant and service wastewater will be collected and treated and reused for greenbelt, dust suppression, etc and zero discharge will be maintained As sea water is proposed for cooling purpose, the same will be discharged into sea through the existing pre cooling channel of NCTPS.
- (vi) Both the inlet & outlet points are proposed to be linked with the NCTPS Stage-II systems. Marine EIA study was carried out by IIT Madras in association with WAPCOS Limited. The highlights of the study are that, no rare, endangered or threatened marine flora and faunal species is reported in and around the project area and the area is devoid of sea weeds and coral reefs. The study indicated the availability of primary nutrients (N & P) in moderate level showing the project area having moderate productivity. The marine water quality in and around the proposed outfall area is that of any normal coastal environment. Outfall temperature of coolant water will be only 3.3 °C higher than ambient and at a distance of 2 km from outfall water temperature reduces to 0.4 °C. The outfall of NCTPS stage III project would not change the quality of natural coastal environment.
- (vii) Fly ash and bottom ash would be collected and stored in the silos and supplied to cement/brick industries for manufacturing cement and bricks. 100% Dry Fly ash Collection will be done by providing Pressurized Dry Fly ash Collection System. The fly ash from the existing Units is being sold by e-auction and the same is proposed for the instant Unit. Ash pond water will be collected, treated then reused for slurry making.
- (viii) Socio economic study of 15 km radius around the project site covering surrounding villages was carried out by M/s Madras School of Social Works. As per the recommendations of the study, the local employable youth will be imparted with training skills since the project area is surrounded by number of Industries. A budget of Rs. 38.0 crores and Rs. 3.0 crores has been earmarked as Capital Cost and recurring cost per annum for CSR respectively. The CSR activities will be monitored by the Environment Cell at project site under the project head.
- (ix) Public Hearing/Public Consultation for the project was conducted by Tamil Nadu Pollution Control Board on 04.07.2014. It was noted that the issues raised in the PH pertained to affect of hot water let out into the sea, discharge of ash slurry, affect of soil and ground water, damage to fishing nets and boats, affect of fly ash in air, employment, hydro-geological study, respiratory problems due to carbon particles etc. The Committee discussed the issues raised in the PH and the reply of the PP.

2. *The Committee inter-alia noted that as per the O.M. dated 03.02.2015, the PP needs to apply online for CRZ clearance to the Ministry and accordingly the Committee shall consider the comments/remarks of CRZ sector of the Ministry. After detailed deliberations, the Committee sought the following information/ documents:*

I. Action plan for harnessing solar power.

- II. *Revised layout clearly depicting the various Units and facilities.*
- III. *FSA/MoU for imported coal.*
- IV. *Letter from competent Port authority regarding handling of the coal.*
- V. *Comparison of the year round base-line data before and after the Stage-I and II.*
- VI. *Stack diameter of all the stacks.*
- VII. *Rechecking and the AAQ predictions.*
- VIII. *The water quality data was not properly presented. Hence, the same needs to be re-done for the fresh water and sea water.*
- IX. *Details of existing and proposed e-auction for fly ash, the LoIs from prospective takers along with quantities etc.*
- X. *Explore various avenues for utilization of bottom ash.*
- XI. *OHS data of the employees of existing Units. If survey not done, the same shall be done and submitted.*
- XII. *Green belt development in the existing Units along with illustrative photographs.*
- XIII. *Employment potential for local people.*

On receipt of the above documentation and information, the case will be placed before EAC for reconsideration.

2.3 Expansion by addition of 6 MW Turbine to existing 60 MW CPP at Villages Govindapuram & Aminabad, Taluk & Distt. Ariyalur, Tamil Nadu by M/s The Ramco Cements Ltd. - For EC.

The PP along with their environmental consultant, Environmental System Consultants & Ambiente Lab Solutions Private Limited, Chennai made a presentation and *inter-alia*, provided the following information.

- (i) ToR for carrying out EIA study and preparation of EMP for the above proposal was accorded by the Ministry on 31.10.2014. Public Hearing was conducted on 05.03.2015. Public Hearing was exempted under Para 7(ii) of EIA Notification, 2006. No litigation is pending against the proposal. Certified compliance report from the Ministry's R.O. for the conditions stipulated in the ECs of the existing Units was submitted and the compliance is found to be satisfactory.
- (ii) Govindapuram Cement Plant operations depend only on the CPPs of 60 MW capacity. The power demand of existing Plant operations and Township is about 57 MW along with 12% Auxiliary consumption of the CPP. To conserve the electrical energy, optimization of Plant operations is being adopted by stopping the non critical equipments such as coal mill, coal mill fans, coal mill grinding, reducing the

production feed, etc. Plant also requires about 6 MW additionally for Clinker loading, Handling of Reclaimers for Limestone & Coal (LSR & CSR Handling), proposed APC Measure (Dedusting) for Clinker loading etc. Hence, the PP has to expand the existing CPP power generation capacity at Govindapuram to meet the additional power demand. There is a surplus steam capacity of 26 TPH unutilized now. Thus, without adding any additional Boiler, the existing CPP can generate the required 66 MW thermal power by adding only a 6 MW Turbine to it. Accordingly, it is proposed to augment the power generation by adding only 6 MW Turbine with Air-cooled condenser to enhance the power generation from 60 MW to 66 MW.

- (iii) The additional Turbine will be installed in the existing Building of 352.50 sq. m. Additionally, about 478 sq. m will be used for housing the Air Cooled Condensers. There is no National Park/Wild Life Sanctuary/Biosphere Reserve/Reserved Forest/Hot Spot/Historical Monuments exist within 10 km radius area. The proposed project cost is Rs. 21.5 Crores. The capital and recurring cost towards EMP is Rs. 1.0 Crores and 0.1 Crores/annum respectively.
- (iv) The proposed augmentation of 6 MW requires another 75 TPD of imported coal from Indonesia with maximum sulphur and ash contents of 1.0% and 14% respectively. Thus, the total coal demand will be 840 TPD for which the Coal Supply Agreement has been made on 19th April, 2014 with M/s. Devendran Coal International (P) Ltd. The imported coal is transported by Rail mode from the Karaikkal Port and the Cement Plant has a Railway Siding.
- (v) The maximum base line concentration of PM₁₀, SO₂ and NO_x as per the pre-monsoon data of 2014 was 45.25 µg/m³, 35.43 µg/m³ and 16.13 µg/m³ respectively. The maximum incremental concentration of PM₁₀, SO₂ and NO_x would be 0.3 µg/m³, 1.02 µg/m³ and 0.48 µg/m³ respectively. Final GLC of all these will be within the prescribed AAQ limits.
- (vi) The additional water demand is only 17.5 m³/d and will be met from Borewells & Mine Pit Water. The existing and proposed water demand viz. 542.5 m³/d and 17.5 m³/d, thus, a total of 560 m³/d is well within the consented quantity of 570 m³/d by the State Ground Water Board (SGWB). Thus, there will not be any additional water demand for the proposed 6 MW Turbine addition. Air Cooled Condensers will be installed. Fly Ash-85.7 TPD and Bottom Ash-15.1 TPD shall be generated. The entire ash will be utilised in the Cement Plant for PPC manufacture and there will be no Ash Pond.
- (vii) The CSR activities will be carried out by providing social and welfare measures for the local residents and nearby villages around the Plant area. The prime focus will be on the creating and maintaining of drinking water facilities for the students at the nearby Government Schools, establishing toilets especially for girl students at the schools, setting up of computer centres, maintenance of village roads & ponds, providing solar street lights, conducting free medical camps etc. About 2% of the Profit (in 3 Preceding Years) will be earmarked as CSR Budget. The PP has the CSR Committee as per the provisions notified by the Ministry of Corporate Affairs on February 27, 2014. In addition to the CSR Budget earmarked for the Year viz. 1.50 crores, additional Rs. 24.85 lakhs will be spent with a Recurring Cost of Rs. 0.40 Lakhs/annum to address the issues raised by the Public.

(viii) Public Hearing was exempted under Para 7(ii) of EIA Notification, 2006 considering the Spatial Impacts due to the Proposal as negligible/insignificant. As per the direction of MoEF&CC, the Public Notices both in English and Tamil languages, were given on 12.12.2014 (Indian Express & Dinamani). The Proposed Project and EIA Findings were also published on the PP's Website for the comments/responses/views/objections, in writing, from the concerned persons having a plausible stake in the environmental aspects of the project or activity. There were 9 Representations (by Post & In-person) and 1 email Response from a NGO. All Issues are addressed with time bound Action Plan and Budget for successful completion. The Committee discussed the same.

2. *Based on the information and clarifications provided by the Project Proponent and detailed discussions held on all the issues, the Committee recommended the project for environmental clearance subject to stipulation of the following additional specific conditions:*

- I. *The boiler shall have at least 10% margin capacity to the TMCR (Turbine Maximum Continuous Rating).*
- II. *The Sulphur and ash content of coal shall not exceed 1.0% and 14 % respectively. 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.*
- III. *As a part of CSR, a surface water body shall be created for use by the nearby villagers.*
- IV. *Ground water recharging shall be done with proper arrangement.*
- V. *Green belt of adequate width shall be developed all around the Plant.*
- VI. *As committed, a minimum amount of Rs. 24.85 Lakhs shall be earmarked as capital cost for CSR activities and Rs. 0.4 Lakhs/annum or the amount as per the CSR policy of GOI whichever is higher shall be earmarked as recurring cost per annum till the operation of the plant.*

2.4 3x600 MW Mahan Super Thermal Power Plant at Singrauli, Madhya Pradesh by M/s. Essar Power (M.P.) Ltd. - For Amendment and Extension of Validity of EC.

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

- (i) EC was accorded to the above project (4 x 500 MW) vide letter dated 20.04.2007 and the same was amended for change in capacity and Unit size (3 x 600 MW) vide letter dated 10.02.2009. Further, an amendment in EC for change in source of coal from domestic to imported and road transportation of coal for an *interim period not exceeding three years* till Mahan coal block becomes operational was accorded vide letter dated 23.08.2013. COD of Unit I was declared on 29.04.2013 and COD of Unit II is expected by December, 2015.
- (ii) Mahan coal block was de-allocated by the Hon'ble Supreme Court vide its order dated 24.09.2014. The PP had participated in the bidding process of coal blocks/ mines and has now been allocated the Tokisud North Coal Mines, Hazaribagh, Jharkhand. The Coal Mining Development and Production Agreement (CMDPA) was signed on 02.03.2015 and the vesting order for the mine was issued vide MoC Order dated 23.03.2015. EC & corresponding amendment and FC were transferred from earlier

allottee (M/s GVK Coal Co. Pvt. Ltd.) to the PP vide letter dated 13.05.2015 and 16.06.2015 respectively.

- (iii) As per current approved mine plan, the peak rated capacity of the Tokisud coal mine is 2.32 MTPA from the 2nd year with the weighted average quality of 4750 kcal/kg, which is better than the quality of coal from Mahan coal block on the basis of which original EC was granted. The average ash and sulphur content of the coal from Tokisud mine will be within 35% and 0.5% respectively and in compliance to the original EC condition. For balance fuel requirement, the PP will continue to use imported coal in line with EC/amendment already granted. In case of non-viability of imported coal, the equivalent quantity will be sourced from spot/ forward e-auction. The PP will further evaluate for participation in forthcoming auction of coal blocks to replace balance imported coal.
- (iv) The coal will be transported from CHP of Tokisud Mine to Tokisud railway siding over a distance of 4 km by road. EC for the same is available as part of the EC to Tokisud Mine. From Tokisud railway siding, the coal shall be transported to Mahadiya/ Singrauli siding by existing rail link over a distance of 383/375 km and from Mahadiya / Singrauli siding to the Power Plant, the coal transportation shall be done by road via Rajmilan – Bandhoura over a distance of 63/74 km. The said road transportation was approved by MoEF&CC vide the said letter dated 23.08.2013.
- (v) In view of above, amendment of EC to source the coal from captive Tokisud mine in addition to the imported coal and extension of validity of EC for 5 years is requested.

2. *The Committee noted that the validity of EC to start the production/operation was for 5 years i.e. till 19.04.2012, whereas the COD of Unit I was declared only 29.04.2013 i.e. beyond the 5 years period. Moreover, the PP did not obtain the extension of EC from the Ministry. Hence, the Ministry may look into the matter in light of the amendment Notification dated 29.04.2015 revising the EC validity to 7 years.*

3. *Based on the information and clarifications provided by the Project Proponent and detailed discussions held on all the issues, the Committee recommended amendment of EC to source the coal from captive Tokisud mine & e-auction in addition to the imported coal till 22.08.2016 and extension of validity of EC by 5 years i.e. till 19.04.2017 subject to stipulation of the following additional specific conditions.*

- I. *The Sulphur and ash contents of domestic coal shall not exceed 0.5% and 35 % respectively. The coal shall be sourced through e-auction only in case of emergency and non viability of imported 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. However, for the imported coal, the ash and sulphur contents will be as specified in the earlier order.*
- II. *The road transportation shall be restricted to the route as approved earlier vide amendment dated 23.08.2013.*
- III. *The transportation by road shall be through mechanically covered trucks to the extent feasible, else through tarpaulin covered trucks so as to prevent coal dust dispersion in the atmosphere.*

2.5 2,640 MW Bhavanapadu Thermal Power Project near Kakarapalli Village, Santhabommali Mandal, Srikakulam District, Andhra Pradesh by M/s. East Coast Energy Pvt. Ltd.- For amendment of EC.

The Committee noted that the EC was accorded to the above project vide letter dated 09.04.2009 and the EC validity was subsequently extended till 08.04.2019 vide MoEF&CC's letter dated 21.08.2014. The Ministry has received an Application filed by some petitioner before Hon'ble NGT, Chennai on the project alleging violation/non-compliance of EC conditions as well as order issued by NEAA. The R.O. of the Ministry in its visit to the project site on 12.02.2015 has, *inter-alia*, observed that the project proponent had acquired an additional land of 250 acres beyond the total area specified in the EC (condition no.ii of EC order) and constructed 14 km garland drain (width of drain varies from 20 m to 80 m) in 173 acres of land and earmarked remaining 77 acres for CSR activities. For this prior permission from the Ministry is not available. Although, the the RO observed that the construction of garland drain is in compliance to the EC condition no. 3 (v) that says, "*Area drainage system will be prepared and implemented to ensure that the ecology of the area is not disturbed. The garland drain, as per the PP, has the approval of the State Govt. Notwithstanding this, the PP was directed to obtain the approval of the Ministry for acquisition of additional land. Accordingly, the PP has applied to the Ministry for amendment of EC for the additional 250 acres of land.*

2. The PP made a presentation and *inter-alia*, provided the following information.
 - (i) The project area as per the said EC is 1995 acres. The instant proposal is for the amendment of EC for 250 Acres (173 acres +77 acres) acquired outside the project battery limits for formation of Garland Drainage and for creating infrastructural facilities for implementation of CSR Activities as per Public Hearing Commitment, Stipulation of APIIC and in compliance to EC Conditions. The issue of garland drain was also discussed by the EAC prior to EC.
 - (ii) A 14 km Garland Drain (width 20 m to 80 m & depth 1 m to 1.5 m) is formed by widening of the existing natural drains in about 173 acres allotted by APIIC. The design of the Garland Drain is approved by the State Irrigation Department vide letter dated 17.06.2009 and the formation is completed in 2010. The Local Fishermen are carrying out fishing activity in the Garland Drain and the local farmers are utilizing the water in the Drain for their second crop. The drainage system has functioned effectively during the recent cyclones and unprecedented rains, when storm water flowed smoothly into the sea. An amount of Rs 54 Crores is incurred for the formation and maintenance of the same. The photographs of the Garland Drain were also presented.
 - (iii) The formation of the Drain has been appreciated by the Hon'ble NEAA during visit along with MoEF expert to the project site in June, 2010 and has also been appreciated by various committees who had visited the project site till date. The PP has recently requested the District Collector, Srikakulam for taking necessary action for directing the irrigation department for future maintenance of the Garland Drain as per the Public Hearing Minutes.
 - (iv) About 77 acres located in the North East direction of the project site, away and outside the power project area is allotted by APIIC. This area is for creating infrastructure facilities for carrying out CSR activities for the benefit of the fishing and farming

community in the area as per Public Hearing Commitment. These activities are yet to be initiated.

3. *At the outset, the Committee noted that the 77 acres of land acquired for CSR activities has no relevance to the project area and will not be discussed. The Committee noted the submission of the PP that the issue of garland drain was also discussed by the EAC prior to EC and hence, sought a detailed note with all the supporting documents in this regard. The report/study submitted by the PP to the State Govt. based on which the State Govt. has accorded approval shall be submitted. The purpose being served by the garland drain shall be certified by the concerned State Govt. Further, considering the sensitivity of the project area in light of the developments post EC, representations received and the matter pending before Hon'ble NGT, the Committee recommended to further address these issues by undertaking a **Site Visit by a Sub-Group of the EAC**. The proposal was accordingly **deferred**.*

2.6 6x660 MW coal based Thermal Power Project at Village Nariyara, District Janjgir-Champa, Chhattisgarh by M/s KSK Mahanadi Power Company Ltd.- For Amendment of EC.

EC was accorded for the above project on 19.10.2009 in the name of M/s. Wardha Power Company Ltd. Further, amendments in EC regarding change in the company name to M/s KSK Mahanadi Power Company Ltd. and tapering coal linkage were accorded on 27.12.2010 and 24.01.2012 respectively. The request of PP was considered favorably for extension of validity of EC by the Committee in its 28th Meeting held during 22nd-23rd December, 2014. However, in the meantime, the Ministry has received an Application filed before Hon'ble NGT, Bhopal alleging the shift/expansion of the project site after EC/Public Hearing and the matter is pending.

2. The Regional Office (R.O) of the MoEF&CC was requested to conduct monitoring of the project especially w.r.t the issue of shift of the project site after EC. The R.O's report shows a slight mismatch between the project area and the co-ordinates as per EC (830 ha.) and the actual (844.82 ha.). The above slight increase in the overall project area was also not informed by the PP to the Ministry and the EAC in the documents submitted for extension of validity of EC. Hence, the PP was directed to obtain amendment in EC for the project area and the co-ordinates. Accordingly, the PP has applied to the Ministry.

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

- (i) The construction and installation of all the project facilities are done well within the specify 830 ha. of land and also well within the overall co-ordinates as specified in the EIA report. Further, the project facilities are within the four specified villages i.e. Nariyara, Tarod, Amora and Rogda only, which were approved at the time of EC and no shifting of project site as occurred what so ever.
- (ii) The topo sheet submitted prior to EC clearly shows the existence of cart tracks for movement of people and goods between the said villages. Since, the power plant facilities are to be set up in the approved 830 ha. area and therefore closing of the cart tracks inevitable, the local district administration, at the instance of people residing in these villages has stipulated that, appropriate road infrastructure be created by the company at its cost, for the usage of people.
- (iii) Due to practical issues on ground, 811.01 ha of acquired land falls within the earlier envisaged co-ordinates and 17.45 ha falls outside the co-ordinates but in the same four

villages. Therefore, the land for the project is only **828.46 ha** as against the 830 ha as per EC.

- (iv) Regarding the balance land of 16.36 ha (844.82 – 828.46), the same was well within the said four villages and acquired at the instance of the District Authorities and to address the concerns of land owners and their demands of semi fragmented holdings. The said 16.36 ha is out of the project purview & facilities and is used for providing village road infrastructure (already built over a length of 15.11 km with 6.5 m breadth) and additional green belt development (6.54 ha).
- (v) The Unit I & II are operational and the remaining Units are at various stages of construction and will be operational latest by 31.12.2017. An amount of about Rs. 41.2 crores was spent on CSR activities till May, 2015 and the balance 22.8 crores (as per EC, the capital cost for CSR is Rs. 64 crores) will be spent by 2017-18. The original and revised layouts, photographs detailing the progress made including the greenbelt and CSR activities were presented.
- (vi) An amount of Rs. 9.47 crores and 1.83 crores per annum was proposed for CSR activities in the EIA/EMP report. However, in compliance to the EC condition regarding CSR, an amount of Rs. 64 crores has been earmarked as the capital cost for CSR. It is requested to amend the CSR condition w.r.t the recurring cost as per the CSR policy of Govt. of India.

4. *The Committee, after further deliberations concluded as follows:*

- *Proposed acquisition of excess land of 16.36 ha for construction of village roads is outside the project boundary wall and partly peripheral in nature. This resembles a road project for which the EAC expressed inability to consider.*
- *Providing EC for a road construction outside the project premises may lead to numerous complications.*
- *The Project Proponent may approach designated authority competent to consider EC for road.*

2.7 Expansion by addition of Unit no. 9 of 800 MW capacity by phasing out existing Units 1 to 4 at Panipat Thermal Power Station at Panipat, Haryana by M/s Haryana Power Generation Corporation Ltd.- For ToR.

The proposal was earlier discussed in the 34th Meeting of the EAC (Thermal) held during 29th- 30th April, 2015, the minutes of which are as under:

Quote “The PP along with their environmental consultant, MECON Ltd., Ranchi made a presentation and inter-alia provided the following information-

- 1) The capacity of existing Units I – VIII are 117.8, 110, 110, 110, 210, 210, 250 and 250 MW respectively totaling to 1367.8 MW. It is proposed to decommission the Units I-IV after the commissioning of the proposed Unit of 800 MW. The coal linkage of Units I-IV shall be diverted to the proposed Unit.

- 2) The proposed Unit will be installed within the existing plant premises of Panipat Thermal Power Station (PTPS), Panipat. Infrastructure facilities like ash dyke, raw water reservoir, marshalling yard, railway siding and colony of the existing plant shall be commonly used. No alternate sites were identified because required land was available inside the existing plant boundary. Panipat Oil Refinery and Panipat Town are located at a distance of 8 km and 10 km respectively from the project site.
- 3) The total coal requirement is 3.20 MTPA at 85% PLF. A blend of indigenous (GCV-3600 Kcal/Kg) and imported coal (GCV- 5400 Kcal/Kg) in 70:30 ratio as per CEA guidelines is proposed to be used. The domestic coal will be sourced from existing coal linkages from BCCL, WCL & CCL and imported coal through prospective suppliers (mainly MSTC, MMTC & STC). The water requirement is 2600 m³/h (25 Cusec) for the proposed Unit and shall be sourced from West Yamuna Canal within the existing allocation. The project cost is about Rs. 4418.9 crores of which the cost towards environment control measures is about Rs. 442 crores.

2. The Committee tried to understand the prevailing wind direction vis-à-vis plant layout including the town ship and the proximity to Panipat Town and Refinery. However, the same was not clear to the Committee. After detailed deliberations, **site visit** by a sub-group of the EAC was recommended. Further, the Committee recommended that breakup of the existing and proposed project site along with revised Form-I and PFR after rectifying the inconsistencies/errors pointed out by the committee, shall be submitted. *The proposal was accordingly deferred. ”Unquote*

3. A sub-group of the EAC has visited the project site on 09.06.2015 and recommended, among others, “The proposed site of Unit # 9 in the existing plant area covering also portion of land between plant boundary and township may be considered by the EAC, if the PP undertakes to provide a buffer of green belt (150 m) between the plant boundary & township by demolishing their existing residential complex, use the existing clarifier of Units 1 to 4 for proposed Unit # 9 for water supply and develop substantial additional green belt towards other sides of boundaries close to the proposed Unit 9”.

4. Based on the recommendation of the sub-group, the PP has revised the plant layout. The maximum possible green belt width between the Plant and township is 120 m and the same shall be provided. The total project area (existing and proposed) is 2148 acres of which plant area, township and ash pond are 877, 400 and 871 acres respectively. The wind-rose diagram shows that the PTPS township is not located in the predominant wind direction.

5. *Based on the information provided and the presentation made, the Committee recommended the following ToR in addition to the standard TORs (as applicable) at Annexure-A1 for undertaking detailed EIA study and preparation of EMP.*

- (i) *Cumulative EIA shall be carried out covering a radius of 20 km.*
- (ii) *The concentration of Heavy metals including Mercury shall be estimated in the ground and surface water*
- (iii) *Examine the feasibility of shifting the project township elsewhere.*
- (iv) *As committed, green belt of minimum 120 m width shall be developed between the plant and township.*

- (v) *The details of employment opportunity and township to be provided.*
- (vi) *Action plan with definitive time frame for decommissioning the 110 MW Units.*
- (vii) *The Project Authority informed that they did not require additional allocation of water for the new unit and therefore, will not be drawn additional water from Tajewala Barrage for the plant.*
- (viii) *As a water conservation measure, necessary rainwater harvesting arrangement will be put in place and attempts shall be made to make reservoir to store rainwater.*

2.8 2x660 MW Supercritical Coal Based Thermal Power Project at Villages Alailo, Bilipada, Nachhipada & Niamatpur, Taluk Mahakalpara, District Kendrapara, Odisha by M/s. SPI Ports Pvt. Ltd. - For ToR

The PP along with their environmental consultant, B. S. Envi-Tech Pvt. Ltd., Hyderabad made a presentation. At the outset, the Committee noted that all the four sites (proposed and three alternate) are nearby and within the catchment area of River Gobri. Further, water from River Gobri is proposed to be used, which will adversely affect the growth and survival of mangroves etc. The proposed site is said to be 12 km from the eco-sensitive zone of Bhitarkanika Sanctuary. *However, prima-facie, the map of eco-sensitive zone produced appears to be incorrect since the eco-sensitive zone is cutting across the map of the wild life sanctuary. Hence, the PP was advised to obtain a map duly authenticated by the Concerned Authorities. Further, the Committee recommended to explore alternate sites preferably based on use of sea water. The proposal was accordingly deferred.*

2.9 Farakka Super Thermal Power Project at Farakka, District Murshidabad, West Bengal by M/s NTPC Ltd.- For Amendment of EC.

The PP along with Inland Waterways Authority of India (IWAI), Central Inland Fisheries Research Institute (CICFRI) and Jindal ITF Ltd. made a presentation and inter-alia provided the following information.

- (i) The total installed capacity of Farakka STPP is 2,100 (3x200 + 2x500 + 1x500) MW. The coal requirement is 16.4 MTPA (about 45,000 TPD) and to be met from domestic coal mines through railways. In order to supplement shortfall of domestic coal to the project, it was proposed to import coal through sea route and transport it to Farakka STPS through National Waterway No.1 (NW-1) i.e river Hoogly. Accordingly, MOEF&CC vide letter dated 31.07.2014 accorded permission for use of blended coal (Domestic 70%: Imported 30%) and temporary permission for transportation of imported coal through NW-1 for a period of one year subject to specific conditions. The present proposal seeks Lifetime Permission for Transportation of Imported Coal through NW-1 to NTPC Farakka STPS. The proposal is claimed to be the first of its kind in India.
- (ii) Ganga-Bhagirathi-Hooghly river system from Allahabad to Sagar is declared as NW-1 vide National Waterway (Allahabad-Sagar stretch of the Ganga-Bhagirathi-Hooghly river) Act, 1982 (49 of 1982). Out of the total 1620 Km stretch of NW-1, only 560 Km stretch from Sagar to Farakka of River Hooghly is being utilized for transportation of imported coal. NTPC and IWAI have entered into a MOU to explore the possibility of use of inland waterways as a viable supplementary mode for transportation of coal for Farakka STPP. As per the MOU, IWAI shall maintain the waterway and provide a

guarantee for navigability of channel. However, execution and implementation of the coal transportation project shall be done through a private operator. Accordingly a tripartite agreement amongst NTPC, IWAI & Jindal ITF Ltd. was signed on 11.08.2011. As per the tripartite agreement M/s Jindal ITF Ltd. would be responsible for unloading the coal from the ocean going vessel and thereafter hauling the coal on barges using NW – 1 and ensuring delivery of coal at the coal stack yard of the Farakka STPP by utilizing the unloading infrastructure through grab crane on a civil service platform on Design, Finance, Build, Operate & Transfer (DFBOT) basis.

- (iii) Among all modes of transport, inland navigation with adopting proper procedures is currently considered the most environmentally sound and sustainable form (United Nations, 1997; Colville et al., 2001; European Commission, 2001). According to a report by the Working Group on Ports and Shipping under the National Transport Policy Development Committee of the Planning Commission during 2012, a litre of diesel would carry 105 tonnes over a kilometer through waterways, 85 tonnes through railways and 24 tonnes through roadways. The emission of greenhouse gases is also relatively low from the sector. In view of the above, it is requested that the permission for transport of coal through NW-1 may be accorded for the lifetime of NTPC Farakka STPS. The ecological study carried out by CIFRI and its recommendations were presented.

2. *Based on the information & clarifications provided and detailed discussions held on all the issues, the Committee recommended for continuation of the permission for transport of maximum 1.5 MTPA coal through NW-1 for another one year i.e. till 30.07.2016 and also sought the following additional information based on the study being carried out by CICFRI . After a period of 6 months, the NTPC shall submit/present findings of the study and EAC shall review the findings of the studies and if need be, would undertake a site visit:*

- I. *Long term, and a minimum period of one year continuous study shall be conducted on the impacts of varying traffic loads on aquatic flora and fauna with particular reference to species composition of different communities, abundance of selective species of indicator value, species richness and diversity and productivity.*
- II. *Impacts of noise generated by the barge movement on Gangetic Dolphin which has been declared a National Aquatic Animal.*
- III. *Energy conservation and other perceived benefits vis-à-vis rail and road transportation.*
- IV. *Impact on the abundance of economically important fish species (including Dolphin), fish growth and production at varying traffic loads.*
- V. *Impact on bank erosion vis-a-vis safeguard measures like stabilization of banks with native vegetation (including mangroves) that will prevent erosion*
- VI. *Impact on the fish catch under varying traffic loads and livelihood of fishermen and their views on the coal transportation by barges.*
- VII. *NTPC shall set up a permanent laboratory of CIFRI at the site to expedite the study w.r.t above parameters and for making scientifically sound conclusions.*
- VIII. *The characteristics of treated sewage which is being reportedly used for irrigation. The coliform count specially has to be monitored and reported.*

IX. Accordingly, the study should conclusively come out as to what tonnage of coal can be transported through Waterways i.e. in the proposed route of NW-1 in an environmentally sustainable manner.

2.10 2x150 MW Coal Based Thermal Power Project at Villages Okkur, Veniddangal, Velankudi & Periakannamangalam, Taluks Kilvelur & Nagapattinam, District Nagapattinam, Tamil Nadu by M/s. Nagai Power Pvt. Ltd.- For Amendment and Extension of Validity of EC.

The PP along with their environmental consultant, B. S. Envi-Tech Pvt. Ltd., Hyderabad made a presentation.

- (i) EC for the above project was accorded by SEIAA, Tamil Nadu vide letter dated 27.05.2010 using imported coal and Sea Water. An amendment in EC for change in source of fuel i.e. use of blended coal (domestic coal: imported coal - 70:30) was accorded by the Ministry on 05.09.2012 due to non-existence of SEIAA at that time. However, the interstate boundary of Puducherry is within 10 km and the project is classified as Category 'A' and appraised at the Centre. As per EC, a total quantity of 4400 m³/h (105,600 m³/d) of sea water was estimated to be drawn. CRZ Clearance to draw water from sea and discharge the treated wastewater of 3645 m³/h (87,480 m³/d) has been obtained.
- (ii) It is proposed to change the Water Cooled Condensing (WCC) System to Air Cooled Condensing (ACC) System (only 282 m³/h) for significantly reducing the sea water requirement for the project. Further, considering the allotment of STP treated water (2.5 MLD) by Govt. of Tamil Nadu vide G.O. (3D) No. 19 dated 10.05.2013 through The Tamil Nadu Water Supply and Drainage Board (TWAD), it is proposed to use 104.63 m³/h of the water allotted by TWAD and sea water (282 m³/h) in case of necessity.
- (iii) Due to various constraints i.e. financial, EPC contractor delay etc, the project execution was delayed. Civil construction works are in full swing, foundations for boiler, Turbine, ESP, CHP, AHP, Ash Pond, Chimney, etc. are completed. Unit # 1 is scheduled to be commissioned by September, 2016 and Unit # 2 is scheduled to be commissioned by September, 2018.

2. Based on the information and clarifications provided by the Project Proponent and detailed discussions held on all the issues, the Committee recommended amendment of EC for installing ACC instead of WCC & use of STP treated water or sea water and extension of validity of EC till December, 2018. Committee noted that although, the PP vide its letter addressed to Ministry has sought extension of five years, based on the actual requirement which has been informed and explained to be September, 2018, the extension may be granted till this requirement i.e. till December, 2018 only.

2.11 2x150 MW Power Plant at Village Sirupulalpettai, Taluk Gummidipoondi, District Thiruvallur, Tamil Nadu by M/s Accord Energy Corporation India Private Ltd.- For Amendment of EC

The proposal was earlier discussed in the 26th Meeting of the EAC (Thermal) held during 27th -28th November, 2014, the minutes of which are as under:

Quote “The project proponent made a presentation inter-alia provided the following information. The proposal is for Amendment (for augmentation of capacity from 2x150 to 2x180 MW) in EC accorded by the Ministry for the above project on 18.05.2011. An amendment to the EC in the Specific Condition no. (iii) regarding rail transportation of coal was accorded on 17.02.2012, which permits transportation of coal by road only for a limited period of four years. The application for EC was appraised at the Centre due to location of inter-state boundary within 10 km.

2. Regarding the present status of the project, the entire land acquisition is complete, and is awaiting issue of Consent to Establish from TNPCB, which is in the final stages of issue. Financial closure is also in the final stages, and is expected by December 2014. Construction will commence after obtaining Consent to Establish from TNPCB.

3. Regarding the progress of Railway Siding, “In-Principle” approval was accorded by Southern Railway on 29.09.2011. Revised final feasibility has been submitted to Southern Railway and route survey is in progress, which will be completed before December, 2015. The land acquisition is envisaged to be completed by June, 2017 and the commissioning of the Plant is targeted by December, 2017. The laying and completion of Railway line by Southern Railway including within Plant will be completed within four years of commissioning.

4. A similar proposal for augmentation of capacity from 160 to 180 MW was recommended by the Committee in February, 2014 and accordingly amendment was accorded by the Ministry on 23.09.2014. The 150 MW Unit can generate upto 180 MW if operated under valve wide open condition, the technology for which was recently developed by the Turbine Supplier.

5. The advantages of the proposed augmentation are that, keeping majority of the systems same, there is a possibility of 30 MW more in each, much lower heat rate to generate higher capacity with less coal consumption, time required is the same, better utilization of the investment made on the transmission line and the clearances already obtained, will remain the same except an amendment for augmentation capacity at 2 x 180 MW. There will be no change in land area and project cost as per the EC.

6. The additional coal requirement for 2x180 MW as against 2x150 MW will be 215 TPD of imported coal and an additional ash of 19.35 TPD will be generated. The stack height requirement based on the SO₂ emissions is 166.18 m, whereas the stack height proposed to be constructed is however 220 m. An MoU was signed with M/s India Cements Ltd. for fly ash utilization in the cement manufacture.

7. There will only be a marginal increase in ground level concentration of SO₂, NO_x and SPM i.e. SO₂ concentration will increase by 1.48 µg/Nm³ from 13.12 µg/Nm³ to 14.6 µg/Nm³, NO_x will increase by 0.55 µg/Nm³ from 4.92 µg/Nm³ to 5.47 µg/Nm³ and SPM will increase by only 0.01 µg/Nm³ from 0.34 µg/Nm³ to 0.35 µg/Nm³. The cumulative incremental GLCs of SO₂, NO_x and SPM considering all the proposed industries within 10 km will be 30.67 µg/Nm³, 20.30 µg/Nm³ and 0.97 µg/Nm³ respectively. The resultant GLCs will be within the NAAQS.

8. The plant will be based on zero discharge and air cooled condenser for main condensate cooling & finfan coolers for auxiliary cooling. The air Compressors and Air Conditioner Cooling will also be based on air cooled. As such no water will be required for cooling purpose. The fresh water (150 KLD) required will be only for boiler make up and domestic consumption. Clearance from Central Ground Water Authority has already been obtained for drawl of 1300 KLD of Ground Water. Total water available for rain water harvesting (normal rainfall days) is

5,95,072.3 cum/year whereas the total water requirement is 54,750.0 cum/year which is only 9.2 % of the total rain water available for harvesting within proposed project site. Therefore, even during drought years when the rainfall is < 50% of normal rainfall, the water requirement for the project can be met out from the harvested rain water. The wastewater emanating from Boiler blow down, D.M. Plant regeneration waste and domestic consumption will be used within the site for coal dust suppression, and green belt. As such there will not be any discharge of wastewater from the plant.

9. *Based on the information & clarifications provided by the Project Proponent, the detailed discussions held on all the issues and considering the advantages of the proposed augmentation, the Committee recommended the project for Amendment in EC for augmentation of capacity from 2x150 to 2x180 MW subject to stipulation of the following additional specific condition.*

- (i) *Need to expedite land acquisition for transportation of coal by Rail. The progress made in this regard shall be submitted to the R.O. of the Ministry on a regular basis.*

*The PP shall advertise in the local newspapers and place on the website, the proposed amendment for public information.” **Unquote***

2. The Ministry referred the proposal to EAC to look into the safety aspect of operating under Valve Wide Open Condition. The PP along with their technical consultant made a detailed presentation. *Based on the information & clarifications provided by the Project Proponent, the detailed discussions held on all the issues and considering the advantages of the proposed augmentation, the Committee re-iterated its earlier recommendation subject to stipulation of the following additional specific conditions.*

- (ii) *The boiler shall have at least 10% margin capacity to the TMCR (Turbine Maximum Continuous Rating).*
- (iii) *Indian Electricity Grid Code (IEGC) shall be complied.*

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 **23rd July, 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.

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

(Shri T.K.Dhar)
Member

(Shri A.K. Bansal)
Member

(Shri J.L. Mehta)
Member

(Shri N.K. Verma)
Member

(Dr. S. D. Attri)
Member

(Shri P.D. Siwal &
Shri N.S. Mondal)
Member

(Shri B.B. Barman)
Member Secretary

List of Participants

2.1 & 2.2 M/s. Tamil Nadu Generation & Distribution Corporation Ltd. (TANGEDCO)

1. Sh. T.V.K. Murugan, Director (Projects)
2. Sh. M. Thirumal, SE/C/ Project & Environment
3. Sh. R. Ganapathy Sankaran, OSD(Projects & Environment)
4. Ms. Munavar Sultana, EE/C
5. Sh. N. Srinivasan, EE/C/EMC
6. Sh. A. Stephen Leo, WAPCOS Ltd.
7. Dr. K. Arun Kumar, Consultant, WAPCOS Ltd.
8. Sh. PVR Surendra, Vice President, Bhagavathi Ana Labs.

2.3 M/s. Ramco Cements Ltd.

1. Sh. M. Srinivasan, Sr. Vice president
2. Sh. E. Arumugarajan , GM (L)
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4. Sh. K. Sekar, Ensyscon, EIA Consultant, Chennai.

2.4 M/s. Essar Power (M.P) Ltd.

1. Sh. Vinay Mittal, M.D.
2. Sh. Pramod Suri, CEO
3. Sh. Dilip K. Naik, V.P (HSE)
4. Capt. Sandeep Gujja, Head (Logistics)
5. Sh. Roshan Agarwal, Head (Raw Material)
6. Sh. Akshay Sharma , Manager

2.5 M/s. East Coast Energy Pvt. Ltd.

1. Sh. R. Srinivasan, V.P (Corporate)
2. Sh. Krovidi Srinivas, V.P (Projects)
3. Sh. Y.B.S Moorthy, Consultant, B.S. Envi Tech Pvt. Ltd.

2.6 M/s. KSK Mahanadi Power Company Ltd.

1. Sh. C.V.K Prasad, Site Head
2. Dr. Acharyulu, Environment Head
3. Sh. H.S. Rajore, G.M (Corp. Affairs)
4. Sh. M. Janardhan, V.P, Vimta Labs

2.7 M/s. Haryana Power Generation Corporation Ltd.

1. Sh. M.K.V. Rama Rao, M.D
2. Sh. S.C. Jain, Director (Generation)
4. Sh. S.K. Khungar, CE/Plg. Sh. D.K. Dua, SE/Plg.
5. Sh. V.K. Chawla, SE/ Civil
6. Sh. Surinder Singh Mittal, OSD (T)
7. Sh. D.P.S. Malik

8. Dr. Vikas Kumar, DGM, MECON
9. Dr. V.V.S.N Pinakapani, DGM, MECON
10. Sh. Gaurav Dubey, ADE, MECON
11. Sh. Kapil Gupta, DM, Lahmeyer

2.8 M/s. SPI Ports Pvt. Ltd.

1. Sh. A.S. Dominic Raja, Director
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2.9 M/s. NTPC Ltd.

1. Sh. R.K. Baderia, HoD (Env. Engg.)
2. Sh. Vijay Prakash, AGM (Env. Engg.)
3. Sh. R. Padma Kumar, AGM (FM)
4. Sh. Ambar Kumar, AGM (FM)
5. Sh. Amit More, Manager (Env. Engg.)
6. Sh. A. Ghosh, AGM (Env.), Farakka STPS
7. Sh. R.P. Khare, Member (Technical), IWAI
8. Sh. M.K. Saha, Director, IWAI
9. Sh. Srikanta Samanta, Pr. Scientist, CIFRI, Barrackpore
10. Sh. Amiya Kumar Sahoo, ICAR-CIFRI, Barrackpore
11. Col. P.S. Gill, Sr. GM, Jindal ITF Ltd.
12. Sh. Joy Saxena, GP & WTD, Jindal ITF Ltd.
13. Sh. Anurag Verma, Project Coordinator, Jindal ITF Ltd.
14. Capt. Suvendu Chatterjee, AVP-Project, Jindal ITF Ltd.

2.10 M/s. Nagai Power Pvt. Ltd.

1. Sh. K.L Narayana, Vice President
2. Sh. K. Tumbanadham
3. Sh. Y.B.S. Murthy, B.S. Envi Tech Ltd.

2.11 M/s. Accord Energy Corporation India Pvt. Ltd.

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