

MINUTES OF THE 28TH MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS HELD ON 27TH JULY, 2022

The 28th Meeting of the re-constituted EAC (Thermal Power) organized by the Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi was held on 27th July, 2022 through video conference under the Chairmanship of Shri Gururaj P. Kundargi. The list of Members participated in the meeting is at **Annexure**.

Agenda Item No.28.1: Confirmation of the Minutes of the 27th EAC meeting

The Minutes of the 27th EAC (Thermal Power) meeting held on 01st July, 2022 were confirmed in the meeting.

Agenda Item No. 28.2

3x660 MW North Karanpura Super Thermal Power Project at Tandwa Village, Distt: Chatra, Jharkhand of NTPC Limited by M/s NTPC Limited – Amendment in Environment Clearance (EC) – reg.

[Proposal No. IA/JH/THE/283765/2022; F. No. J-13011/26/89-IA.II (T)]

28.2.1 The proposal is for amendment in Environmental Clearance to 3x660 MW North Karanpura Super Thermal Power Project at Tandwa Village, Distt: Chatra, Jharkhand by M/s NTPC Limited.

28.2.2 The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

- (i) Environmental Clearance (EC) was accorded by MoEF vide letter dated 29.11.2004 to 3x660 MW North Karanpura Super Thermal Power Project near Tandwa in Chatra Distt, Jharkhand of National Thermal Power Corporation Ltd. as per EIA Notification, 1994. Environmental Clearance dated 29.11.2004 was re-validated on 19.02.2014. Further, amendment in EC was granted on 31.10.2014 for use of Air Cooled Condenser System in place of Water Cooled Condenser System.
- (ii) The proposal has been submitted for amendment in EC Revalidation letter dated 19.02.2014 conditions no. xxx and xlix, which are as follows:

EC Condition	Stipulation in EC	Amendment Requested	Justification for amendment
Clause No. xxx Revalidation of EC letter no J-13011/26/89 -IA.I (T), dated 19.02.2014	<i>“A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a</i>	The term "in-built continuous" in said stipulation may kindly be amended with "regular periodical monitoring"	NTPC has explored the technologies for in-built continuous monitoring of radioactivity and heavy metals in coal and ash. It may kindly be noted that no

	<p><i>reputed institute. Thereafter mechanism for an in- built continuous monitoring for Radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place."</i></p>		<p>instrument for online in-built continuous monitoring of heavy metals is available. Only periodic sampling of Heavy metals and radioactivity is usually being conducted through reputed Laboratory/ Institute. The above-mentioned condition has been amended by MOEF&CC for our other projects like Khargone STPP (2x660 MW), Barh STPP Stage-I (2x660 MW), Gardarwara STPP Stage-I (2x800MW), Firoz Gandhi Unchahar STPP Stage-IV (1x500 MW) and Telengana STPP Stage-IV, Phase-I (2x800 MW).</p>
<p>Condition No. xlix Revalidation of EC letter no J-13011/26/89-IA.II (T), dated 19.02.2014</p>	<p><i>"A minimum amount of 0.4% of the project cost shall be earmarked as one-time capital cost for activities to be taken up under CSR during construction phase of the project. Subsequently, a Recurring expenditure of 1/5th of the capital cost of the CSR activities per annum till life of the plant. Social audit by a</i></p>	<p><i>Part Condition Subsequently "a recurring expenditure of 1/5th of the capital cost of the CSR activities per annum till life of the plant" in said stipulation may kindly be waived off.</i></p>	<p>NTPC has already identified various CD/CSR activities including infrastructural development and welfare projects with a capital expenditure amounting to Rs. 648.00 crores (Rs. 600 Crores towards Big Ticket Activities and Rs. 48 Crores towards activities in Peripheral Villages). Against these activities, Rs. 365.38 crore have already been spent (Rs. 330 Crores towards Big Ticket Activities and Rs. 35.38 Crores towards activities in Peripheral</p>

	<p><i>reputed University or an Institute shall be carried out periodically as per CSR guidelines of Govt. of India and details to be submitted to MoEF besides putting it on Company's website."</i></p>	<p>Villages) and the works are under various stages of completion by different agencies. NTPC hereby commits to make a recurring expenditure of Rs. 2.5 Cr/Annum on local CSR/CER activities till the life of project subject to Station/Company Profit. Similar amendments have already been accorded for Darlipali, Solapur, Kudgi & Garadwara. Mauda STPP of NTPC vide letter no J-13012/65/2008-IA.II (T) dated 11.08.2020 of MoEF&CC.</p>
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28.2.3 The EAC during deliberations noted the following:

The proposal is for grant of amendment in Environmental Clearance conditions to 3x660 MW North Karanpura Super Thermal Power Project at Tandwa Village, Distt: Chatra, Jharkhand by M/s NTPC Limited. EAC noted that project is still under construction and no unit has been commissioned yet. The Environmental Clearance dated 29.11.2004 was granted by MoEF as per EIA Notification, 1994, therefore as per provisions of EIA Notification 1994 and 2006, EC is valid till date. Also, during the meeting it was noted that out of 3 units, 1 unit will be commissioned by the end of September, 2022.

One of the amendments sought is regarding monitoring of heavy metals and radioactivity. The PP has requested to allow them to conduct periodic sampling of heavy metals and radioactivity instead of online in-built continuous monitoring as there is no technology available for such monitoring.

Regarding the amendment requested for deletion of condition about "*a recurring expenditure of 1/5th of the capital cost of the CSR activities per annum till life of the plant*", the EAC was of the view that the CSR activities during operation phase may be linked to profits as pre-fixing the recurring amount may be burdensome to proponents. The Companies Act takes care of the CSR compliance during operation phase. However, presently the MoEF&CC following the concept of Corporate Environment Responsibility (CER) in terms of Office Memorandum No. 22-65/2017-IA.III dated 1st May, 2018, 30th September, 2020 read with Office Memorandum No. 22-65/2017-IA.III dated 25th February, 2021, wherein the PP has to implement the CER

activities as identified during the process of public consultation and commitments made by PP along with the activities suggested by the EAC.

The EAC noted that the PP had made commitment for establishment of power engineering institute, the same has not been established till date. The PP informed that they have already taken up the issue for allocation of the land for the institute. Earlier an area of 25 acres was identified by the state government in Hazaribagh district. However, due to the land involving the forest land and administrative reasons, it could not materialize.

Following is the list of activities with the details of expenditure details and no of beneficiaries that has been carried out in the sector of skill development.

Sr. No.	Activity	Amount	Year	Beneficiaries
1	Tailoring Training to Women at Project affected villages	6,64,184	2015-2021	630
2	Poultry Training to Women at Project affected villages	1,19,262	2020-2022	30
3	Training on Honeybee-keeping to women of PAVs (In-process)	75,000	2021-2022	40
	Total	8,58,446		730

In the Social Impact Assessment carried out by KPMG Assurance and Consulting Services LLP in the year 2021-22, around 63% of the beneficiaries reported that the training was accessible for those who needed it. The training program had a positive impact on both the theoretical and practical learning of the beneficiaries. About 67% of the surveyed beneficiaries found the training to be effective and noted that they were able to understand and apply the concepts that were covered during the course. Among the beneficiaries surveyed, about 52% remarkeded that their skills had been improved after attending NTPC's skill development activities. Further in the year of 2022-23 more trainings are in the pipeline. Trainings on establishing Silai Schools in the project affected villages and Sericulture are being planned in collaboration with USHA International Limited and Jharcraft, Govt. of Jharkhand respectively. These trainings will not only enhance the skills but will also generate employment opportunity for the villagers.

28.2.4 *The EAC, after detailed deliberations on the information submitted by the project proponent, accepted the amendments as requested by the PP subject to compliance of following additional conditions:*

- i. 24x7 online Continuous monitoring system for ambient air quality parameters SOx, NOx and PM shall be established with connected server to CPCB and SPCB.*
- ii. All the Public hearing issues shall be addressed, skill development programme, sanitation facilities, Education and drinking in an around 5 km of project boundary shall be provided as CER activities. Status report and cost incurred in all activities shall be submitted on six monthly basis.*

- iii. MoU shall be signed with State government in a time bound manner (within 6 months) for establishment of Power Engineering College and its implementation report shall be submitted along with six-monthly compliance report on PARIVESH. An alternative option like ITI/Diploma Institute within 10km radius of the project site shall be explored and implemented under definite time schedule in case MoU is not signed for construction of college. Required land for establishing Power Engineering College/ITI/Diploma Institute may be acquired by the NTPC.
- iv. Other conditions of the EC letter dated 29.11.2004, re-validation of EC dated 19.02.2014 and amendment letter dated 31.10.2014 shall remain unchanged.

Agenda Item No. 28.3:

2x800 MW Lara Super Thermal Power Project (expansion Stage-II) in an area of 2400 acres located at Village Lara, Tehsil & District Raigarh, Chhattisgarh by M/s NTPC – Amendment in Terms of References (TOR) – reg.

[Proposal No. IA/CG/THE/281613/2022; F. No. J-13012/11/2018-IA.I (T)]

28.3.1 The proposal is for grant of amendment of Terms of Reference to 2x800 MW Lara Super Thermal Power Project (expansion Stage-II) in an area of 2400 acres located at Village Lara, Tehsil & District Raigarh, Chhattisgarh by M/s NTPC.

28.3.2 The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

- (i) Terms of Reference (ToR) was accorded by MoEF&CC vide letter dated 29.10.2018 for conducting EIA Study based on Air Cooled Condenser (ACC) System to 2x800 MW (Expansion, Stage-II) Coal Based Lara Super Thermal Power Project at villages Armuda, Chhapora, Bodajharia, Devalpura, Mahloi, Riyapalli, Lara, Jhilgitar and Kandagarh, in Taluk Pussore, in District Raigarh, in Chhattisgarh by M/s NTPC Ltd.
- (ii) Earlier the proposal for amendment in Terms of Reference for change in Unit configuration (2x660 MW) and cooling system was submitted to MoEF&CC on 20.04.2022 and the proposal was considered in the EAC meeting held on 09.05.2022. Subsequently, during a review meeting held on 13.05.2022, Hon'ble Minister of Power, New & Renewable Energy suggested to maximise the capacity of thermal power stations and accordingly NTPC proposes to install 2x800 MW with Water Cooled Condenser. Hence, NTPC vide letter CC: ESE:9548:2022:GEN dated 16.05.2022, NTPC requested MoEF&CC to defer the said proposal and a fresh proposal for 2x800 MW is being submitted.
- (iii) In view of the implementation issues faced in ACC Systems at its ongoing power projects, M/s NTPC submitted the fresh proposal for amendment in Terms of Reference for setting up 2x800 MW Power Plant with Water Cooled Condenser (WCC) instead of earlier proposed based on Air Cooled Condenser (ACC) System. However, the Public Hearing could not be conducted.
- (iv) Accordingly, Draft Comprehensive EIA report was prepared for 2X800 MW Power Plant with ACC System based on data generated during October-2018 to September-2019. There are no changes in emission norms or resource requirement except an increase of additional water requirement from 1600 m/hr to 4800 m/hr due to installation of WCC instead of ACC.

28.3.3 The EAC during deliberations noted the following:

The proposal is for grant of amendment of Terms of Reference to 2x800 MW Lara Super Thermal Power Project (expansion Stage-II) in an area of 2400 acres located at Village Lara, Tehsil & District Raigarh, Chhattisgarh by M/s NTPC for Water Cooled Condenser (WCC) instead of earlier proposed based on Air Cooled Condenser (ACC) System.

Considering the request of PP, the EAC observed that for ACC water consumption is very less (almost 5 times) and coal consumption is more as compared to WCC system which consumes more water and less coal as compared to ACC.

It has been noted by the EAC that no vendor available for ACC System for more than 500 MW thermal power plant and due problem faced during operation on Air Cooled Condenser (ACC) System, M/s NTPC proposes to change its condensing facility from ACC System to WCC System.

The EAC noted that Thermal power plants use water cooled condenser systems for condenser and auxiliary cooling. In all NTPC power plants except few old plants, closed cycle cooling system with cooling towers based on water cooled condenser is used. Recently, NTPC adopted air cooled condenser system in two of its projects – North Karanpura STPP (3x660 MW) and Patratu STPP, Stage-I (3x800 MW). The air cooled condenser system has a significant advantage over water cooled condenser system in terms of water consumption, which is reduced to almost one third. However, there are certain disadvantages also, as follows:

- Reduction in Thermal Efficiency due to adoption of ACC instead of water cooled condensers: 1.6%
- Increase in Heat Rate due to adoption of ACC instead of water cooled condensers: About 4% (2248 to 2338)
- Increase in Coal Consumption (for 2x800 MW): 41 T/Hour
- Additional capital and operation expensed due to ACC System (of the order of 15-20 paisa per unit).
- Additional CO₂ Emission (for 41 T/Hr. coal): 0.392 Million Tons Per Annum

On other hand the water condenser cooling systems causes severe environmental impacts, killing of fish, degrading aquatic ecosystems, and increasing the temperature of rivers, lakes, and other water bodies. It also increases the water consumption many folds as compared to water uses in air cooled condenser system. Keeping in view of the fact that Thermal Power Plants are water intensive industry the consideration on water conservation aspect is also important to have a sustainable approach while implementing such projects. The EAC was of the view that there should be an environmentally sustainable strategy for using the appropriate indigenous cooling technology for such plants. The NTPC can take initiative in developing this strategy in consultation with premier technical/research institutions of the country.

The EAC desired to have a site visit of North Karanpura STPP (3x660 MW) and Patratu STPP, Stage-I (3x800 MW) where the NTPC adopted air cooled condenser system, the **Lara Super Thermal Power Project** site shall also be visited at the same time so as to take a view about environment feasibility of both these technologies at the time of

consideration of proposal for grant of Environmental Clearance (EC). However, in the present context the EAC was agreed to the proposed amendment in the TOR w.r.t. use of cooling technology.

28.3.4 *The EAC, after detailed deliberation and considering all the facts of the project as presented by the project proponent accepted the amendment as proposed by the Project Proponent with following additional TOR:*

- (i) A study shall be carried out for comparison between ACC and WCC in terms of Environment cost benefit analysis and impact on source of water due to WCC and same shall be incorporated in EIA/EMP report.*
- (ii) Other ToR mentioned in the MoEF&CC TOR letter dated 29.10.2018 shall remain unchanged.*

The meeting ended with vote of thanks to the Chair.

ATTENDANCE

S. No.	Name	Role	Attendance
1.	Shri Gururaj P. Kundargi	Chairman	P
2.	Dr. N. P Shukla	Member	P
3.	Shri Suramya Vora	Member	P
4.	Dr. Santosh Kumar	Member	P
5.	Dr. Umesh Jagannathrao Kahalekar	Member	P
6.	Shri K. B. Biswas	Member	P
7.	Shri M. P. Singh	Member(Representative of CEA)	P
8.	Sh. Nazimuddin	Member (Representative of CPCB)	P
9.	Shri Yogendra Pal Singh	Member Secretary	P

APPROVAL OF THE CHAIRMAN

From: "Yogendra Pal Singh" <yogendra78@nic.in>
To: gpkundargi@gmail.com
Sent: Monday, August 8, 2022 3:51:06 PM
Subject: Re: Draft MOM of the EAC (Thermal) meeting held on 27.07.2022, for perusal and comments-reg

Thanks Sir.

From: gpkundargi@gmail.com
To: "Yogendra Pal Singh" <yogendra78@nic.in>
Sent: Monday, August 8, 2022 3:47:13 PM
Subject: Re: Draft MOM of the EAC (Thermal) meeting held on 27.07.2022, for perusal and comments-reg

Dear Dr Yogendra ji
The corrected draft minutes are fine with me and aproved.
Thank you
G P Kundargi

On Mon, 8 Aug, 2022, 3:32 pm Yogendra Pal Singh, <yogendra78@nic.in> wrote:

Dear Sir,

The correction suggested by representative CPCB have been incorporated in the MOM. The final MOM are attached herewith for approval please.
