

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s Khaperkheda Thermal Power Station  
Maharashtra State Electricity Board  
Khaperkheda (Via Nagpur)-441 102  
Maharashtra

Sub: **Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation

of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-



CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest& Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.


NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Khaperkheda Thermal Power Station:

- i. That plant shall meet emission limit of PM by installing Electrostatic Precipitator (ESP) by March 31, 2021 in Unit 1, 2 & 3
- ii. That plant shall install FGD by March 31, 2021 in Unit 1, 2, 3, 4 & 5 so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Khaperkheda Thermal Power Station shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman  
hsg

Copy to:

1. The Chairman  
Maharashtra Pollution Control Board,  
Kalpataru Points, 3rd & 4th Floor,  
Sion Matunga Scheme Road No.6 Opp. Cine Planet,  
Sion Circle, Sion (E), Mumbai-400 022

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Parivesh Bhawan, Opp. VMC Ward Office no. 10  
Subhanpura Vadodara - 390 023
5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s Nashik Thermal Power Station  
Maharashtra State Electricity Board  
Nashik-422 105, Maharashtra

**Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;



WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation

of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-

CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Nashik Thermal Power Station:

- i. That plant shall meet emission limit of PM by installing Electrostatic Precipitator (ESP) by March 31, 2021 in Unit 4 & 5
- ii. That plant shall install FGD by March 31, 2021 in Unit 3, 4 & 5 so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Nashik Thermal Power Station shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

(A.R. Mehta)  
Chairman

Copy to:

1. The Chairman  
Maharashtra Pollution Control Board,  
Kalpataru Points, 3rd & 4th Floor,  
Sion Matunga Scheme Road No.6 Opp. Cine Planet,  
Sion Circle, Sion (E), Mumbai-400 022

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Parivesh Bhawan, Opp. VMC Ward Office no. 10  
Subhanpura Vadodara - 390 023
5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary



SPEED POST

December 11, 2017

B-33014/07/2017-18/IPC-II/TPP/

To

M/s Parli Thermal Power Station  
Maharashtra State Electricity Board  
Parli- Baijnath 431 520, Maharashtra

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WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued on 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

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WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

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WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1/ 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation



of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-



CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

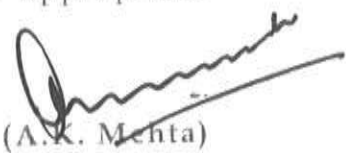

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Parli Thermal Power Station:

- i. That plant shall meet emission limit of PM by installing Electrostatic Precipitator (ESP) by March 31, 2021 in Unit 4, 6, 7 & 8
- ii. That plant shall install FGD by March 31, 2021 in Unit 4,5,6,7 & 8 so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Parli Thermal Power Station shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Menta)  
Chairman  


Copy to:

1. The Chairman  
Maharashtra Pollution Control Board,  
Kalpataru Points, 3rd & 4th Floor,  
Sion Matunga Scheme Road No.6 Opp. Cine Planet,  
Sion Circle, Sion (E), Mumbai-400 022

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Parivesh Bhawan, Opp. VMC Ward Office no. 10  
Subhanpura Vadodara - 390 023
- ✓ 5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

Nasik Rattan India Thermal Power Project  
Sinnar Village, Dist. Nasik,  
Maharashtra

Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No. S.O.3305(E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF & CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;



WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPW dated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015

notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017 as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change, Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Nasik RattanIndia Thermal Power Project:

- i. That plant shall meet emission limit of PM by installing Electrostatic Precipitator (ESP) by March 31, 2021 in Unit 1 & 2 and by December 31, 2022 in Unit 3, 4 & 5 respectively
- ii. That plant shall install FGD by March 31, 2021 in Unit 1 & 2 and by December 31, 2022 in Unit 3, 4 & 5 respectively so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

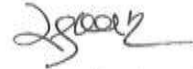
M/s Nasik RattanIndia Thermal Power Project shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman

Copy to:

1. The Chairman  
Maharashtra Pollution Control Board,  
Kalpataru Points, 3rd & 4th Floor,  
Sion Matunga Scheme Road No.6 Opp. Cine Planet,  
Sion Circle, Sion (E), Mumbai-400 022

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Parivesh Bhawan, Opp. VMC Ward Office no. 10  
Subhanpura Vadodara - 390 023
5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary



SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s Vidarbha Industries Power Limited  
Reliance Power Ltd, MIDC Area,  
Dist. Buldhari, Maharashtra

Sub: **Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued on 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF&CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:



1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;





WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/Nm<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;



WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 63925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPW dated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015





notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017 as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change, Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Vidarbha Industries Power Limited:

- i. That plant shall meet emission limit of PM immediately by installing Electrostatic Precipitator (ESP)
- ii. That plant shall install FGD by June 30, 2021 and March 30, 2021 in Unit 1 & 2 respectively so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Vidarbha Industries Power Limited shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

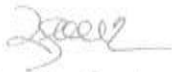
  
(A.K. Mehta)  
Chairman  


Copy to:

1. The Chairman  
Maharashtra Pollution Control Board,  
Kalpataru Points, 3rd & 4th Floor,  
Sion Matunga Scheme Road No.6 Opp. Cine Planet,  
Sion Circle, Sion (E), Mumbai-400 022



2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Parivesh Bhawan, Opp. VMC Ward Office no. 10  
Subhanpura Vadodara - 390 023
- ✓ 5. The Divisional Head - IT, CPCB

  
(A. Sudhakar)  
Member Secretary





SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s Wardha Power Company Ltd.  
MIDC, Warora  
Dist. Chandrapur 442914,  
Maharashtra

**Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation

of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.17, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-



CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest& Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Wardha Power Company Ltd:

- i. That plant shall meet emission limit of PM immediately by installing Electrostatic Precipitator (ESP)
- ii. That plant shall install FGD by September 30, 2021 in Unit 1 & 2 and by December 31, 2021 in Unit 3 & 4 respectively so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Wardha Power Company Ltd shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.V. Mehta)  
Chairman



Copy to:

1. The Chairman  
Maharashtra Pollution Control Board,  
Kalpataru Points, 3rd & 4th Floor,  
Sion Matunga Scheme Road No.6 Opp. Cine Planet,  
Sion Circle, Sion (E), **Mumbai-400 022**
2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, **New Delhi - 110 003**
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
**New Delhi**
4. The Regional Director,  
Central Pollution Control Board  
Parivesh Bhawan, Opp. VMC Ward Office no. 10  
Subhanpura **Vadodara - 390 023**
- ✓ 5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary



SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s Dhariwal Infrastructure Private Limited  
C-6 Tadali Growth Centre,  
M.I.D.C. Tadali,  
Dist: Chandrapur- 442406,  
Maharashtra

**Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in

ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted



to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation, to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new

emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest& Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Dhariwal Infrastructure Private Limited:

- i. That plant shall meet emission limit of PM immediately by installing Electrostatic Precipitator (ESP)
- ii. That plant shall install FGD by March 31, 2022 in Unit 1 & 2 so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Dhariwal Infrastructure Private Limited shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman  


**Copy to:**

1. The Chairman  
Maharashtra Pollution Control Board,  
Kalpataru Points, 3rd & 4th Floor,  
Sion Matunga Scheme Road No.6 Opp. Cine Planet,  
Sion Circle, Sion (E), **Mumbai-400 022**
2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, **New Delhi - 110 003**
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
**New Delhi**
4. The Regional Director,  
Central Pollution Control Board  
Parivesh Bhawan, Opp. VMC Ward Office no. 10  
Subhanpura **Vadodara - 390 023**
- ✓ 5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary



SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s GMR Warora Energy Limited  
MIDC Growth Center,  
Dist. Warora 442907,  
Maharashtra

Sub: **Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation



of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-

CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest& Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s GMR Warora Energy Limited:

- i. That plant shall meet emission limit of PM immediately by installing Electrostatic Precipitator (ESP)
- ii. That plant shall install FGD by March 31, 2022 in Unit 1 & 2 so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

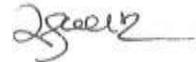
M/s GMR Warora Energy Limited shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.R. Mehta)  
Chairman

Copy to:

1. The Chairman  
Maharashtra Pollution Control Board,  
Kalpataru Points, 3rd & 4th Floor,  
Sion Matunga Scheme Road No.6 Opp. Cine Planet,  
Sion Circle, Sion (E), Mumbai-400 022

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, **New Delhi - 110 003**
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
**New Delhi**
4. The Regional Director,  
Central Pollution Control Board  
Parivesh Bhawan, Opp. VMC Ward Office no. 10  
Subhanpura **Vadodara - 390 023**
- ✓ 5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary



SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

The General Manager  
Paras Thermal Power Station  
Maharashtra State Electricity Board  
Paras, taluka; balapur, dist; Akola- 444

Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No. S.O.3305(E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF & CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unit wise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a

relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPW



dated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017 as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change, Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Paras Thermal Power Station, Mahagenco:

- i. That plant shall install installing Electrostatic Precipitator ( ESP) by March 31, 2021 in unit 3 & 4 respectively so as to comply PM emission limit
- ii. That plant shall meet SO<sub>2</sub> emission limit by installing FGD/lime injection as applicable immediately
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air ( OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Paras Thermal Power Station, Mahagenco shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman



**Copy to:**

1. The Chairman  
Maharashtra Pollution Control Board,  
Kalpataru Points, 3rd & 4th Floor,  
Sion Matunga Scheme Road No.6 Opp. Cine Planet,  
Sion Circle, Sion (E), Mumbai-400 022
2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Parivesh Bhawan, Opp. VMC Ward Office no. 10  
Subhanpura Vadodara - 390 023
5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary



SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s Jindal India Thermal Power Limited  
Derang, Dist: Angul - 759130;  
Odisha

**Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued on 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

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WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
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3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-23;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPW dated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015



notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017 as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change, Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Jindal India Thermal Power Limited:

- i. That plant shall meet emission limit of PM immediately by installing Electrostatic Precipitator (ESP)
- ii. That plant shall install FGD by March 31, 2021 in Unit 1 & 2 so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Jindal India Thermal Power Limited shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

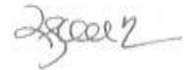
  
(A.K. Mehta)  
Chairman

Copy to:

1. The Chairman  
Odisha State Pollution Control Board  
Paribesh Bhawan, A-118, Nilakantha Nagar  
Unit VIII Bhubaneswar - 751 012,  
Odisha



2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Southend Conclave, Block 502, 5th & 6th Floor  
1582, Rajdanga Main Road  
Kolkata - 700 107
5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s GMR Kamalanga Energy Ltd  
Kamalanga Village, Odapada Taluk,  
Dist: Dhenkanal; Odisha

Sub: **Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;



WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC, etc.;

WHEREAS, MoEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW. need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPW dated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015



notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017 as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change, Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s GMR Kamalanga Energy Ltd:

- i. That plant shall meet emission limit of PM immediately by installing Electrostatic Precipitator (ESP)
- ii. That plant shall install FGD by December 31, 2021 in Unit 1 & 2 and by September 30, 2021 in Unit 3 respectively so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

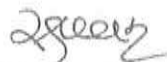
M/s GMR Kamalanga Energy Ltd shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman

Copy to:

1. The Chairman  
Odisha State Pollution Control Board  
Paribesh Bhawan, A-118, Nilakantha Nagar  
Unit VIII Bhubaneswar - 751 012,  
Odisha

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, **New Delhi - 110 003**
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
**New Delhi**
4. The Regional Director,  
Central Pollution Control Board  
Southend Conclave, Block 502, 5th & 6th Floor  
1582, Rajdanga Main Road  
**Kolkata - 700 107**
- ✓ 5. The Divisional Head - IT, CPCB

  
(A. Sudhakar)  
Member Secretary

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s IB Valley Thermal Power Station  
OPGECO, Banharpali,  
Dist: Jharsuguda; Odisha

**Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;



WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

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WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;



WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPW dated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015

notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017 as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change, Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s IB Valley Thermal Power Station:

- i. That plant shall meet emission limit of PM by installing Electrostatic Precipitator (ESP) by September 30, 2021 in Unit 1 & 2
- ii. That plant shall install FGD by September 30, 2021 in Unit 1 & 2 so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s IB Valley Thermal Power Station shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman  


Copy to:

1. The Chairman  
Odisha State Pollution Control Board  
Paribesh Bhawan, A-118, Nilakantha Nagar  
Unit VIII Bhubaneswar - 751 012,  
Odisha

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Southend Conclave, Block 502, 5th & 6th Floor  
1582, Rajdanga Main Road  
Kolkata - 700 107

✓ 5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s IND-Barath Power Station  
Sahajbahal Village, Lakhanpur Tehsil,  
Dist: Jharsuguda; Odisha

Sub: **Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:



1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;



WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPW dated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015

notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017 as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change, Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority, for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.



NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s IND-Barath Thermal Power Station:

- i. That plant shall meet emission limit of PM by installing Electrostatic Precipitator (ESP) by March 31, 2022 in Unit 1.
- ii. That plant shall install FGD by March 31, 2022 in Unit 1 so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

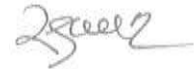
M/s IND-Barath Thermal Power Station shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman  


Copy to:

1. The Chairman  
Odisha State Pollution Control Board  
Paribesh Bhawan, A-118, Nilakantha Nagar  
Unit VIII Bhubaneswar - 751 012,  
Odisha

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Southend Conclave, Block 502, 5th & 6th Floor  
1582, Rajdanga Main Road  
Kolkata - 700 107
5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary



SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s Sterlite Energy Pvt Ltd,  
Bhurkamunda, Jharsuguda 768201,  
Dist: Jharsuguda; Odisha

Sub: **Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued on 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No. S.O.3305(E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF & CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:



1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting, additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPW dated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015

notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017 as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.


NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Sterlite Energy Pvt Ltd, Jharsuguda:

- i. That plant shall install/retrofit Electrostatic Precipitators ( ESP) immediately so as to comply PM emission limit
- ii. That plant shall install FGD by March 31, 2022 in unit 2 respectively so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air ( OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Sterlite Energy Pvt Ltd, Jharsuguda shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman  


Copy to:

1. The Chairman  
Orissa State Pollution Control Board  
A-118, Nilakantha Nagar  
Unit VIII Bhubaneswar - 751 012

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Southend Conclave, Block 502, 5th & 6th Floor  
1582, Rajdanga Main Road  
Kolkata - 700 107
5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary



SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s Talcher Super Thermal Power Station  
NTPC Ltd, Talcher, P.O. Deepshikha Kaniha,  
Dist: Angul-759 147, Odisha

Sub: **Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation

of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air, shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-



CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest& Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Talcher Super Thermal Power Station:

- i. That plant shall meet emission limit of PM by installing Electrostatic Precipitator (ESP) by December 31, 2022 in Unit 5 & 6.
- ii. That plant shall install FGD by December 31, 2022 in Unit 1, 2, 3, 4, 5 & 6 so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Talcher Super Thermal Power Station shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman

Copy to:

1. The Chairman  
Odisha State Pollution Control Board  
Paribesh Bhawan, A-118, Nilakantha Nagar  
Unit VIII Bhubaneswar - 751 012,  
Odisha



2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
Southend Conclave, Block 502, 5th & 6th Floor  
1582, Rajdanga Main Road  
Kolkata - 700 107
5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 14, 2017

To

M/s Gonidwal Sahib Thermal Power Plant,  
GVK Power, Goindwal Sahib  
Dist. Taran Taran 143 422,  
Punjab

**Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in

ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted

to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.17, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new



emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest& Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Gonidval Sahib Thermal Power Plant:

- i. That plant shall meet emission limit of PM immediately by installing Electrostatic Precipitator (ESP).
- ii. That plant shall install FGD by April 30, 2020 and February 28, 2020 in Unit 1 & 2 respectively so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Gonidval Sahib Thermal Power Plant shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman

Copy to:

1. The Chairman  
Punjab Pollution Control Board  
Vatavaran Bhawan, Nabha Road  
Patiala 147 001, Punjab

2. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
Jor Bagh Road, New Delhi - 110 003
3. The Joint Secretary (Thermal)  
Ministry of Power  
Shram Shakti Bhawan, Rafi Marg  
New Delhi
4. The Regional Director,  
Central Pollution Control Board  
PICUP Bhawan, Ground Floor  
Vibhuti Khand, Gomti Nagar  
Lucknow-226010
5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

M/s Talwandi Sabo Power Ltd,  
Vill Banawala  
Dist - Mansa 151302  
Punjab

**Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.**

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No.S.O.3305 (E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF& CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unitwise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO<sub>2</sub> norms based on the SO<sub>2</sub> emission levels from power plants;

WHEREAS, it was also pointed out that NO<sub>x</sub> control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO<sub>x</sub> control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO<sub>x</sub> norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30<sup>th</sup> June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in

ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO<sub>2</sub> emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM<sup>3</sup> would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW ( as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO<sub>2</sub> emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO<sub>x</sub> norms in the plants installed before 31.12.2003 a period of three years may be permitted



to achieve specified standards of 600 mg/Nm<sup>3</sup>. For other plants a relaxation of 600 mg/Nm<sup>3</sup> in place of 300 and 100 mg/Nm<sup>3</sup> for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.17, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO<sub>2</sub> by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO<sub>2</sub> emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO<sub>x</sub>, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO<sub>x</sub> burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new

emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest& Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.


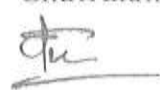
NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Talwandi Sabo Power Ltd., Mansa, Punjab :

- i. That plant shall meet emission limit of PM immediately by installing Electrostatic Precipitator (ESP).
- ii. That plant shall install FGD by December 31, 2019 in Unit 1,2 &3 respectively so as to comply SO<sub>2</sub> emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2019

The time line mentioned above (i to iii) for compliance of PM, SO<sub>2</sub> & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

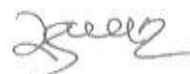
The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Talwandi Sabo Power Ltd., Mansa, Punjab shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

  
(A.K. Mehta)  
Chairman  


Copy to:

1. The Chairman  
Punjab Pollution Control Board  
Vatavaran Bhawan, Nabha Road  
Patiala-147001, Punjab
2. The Addl. Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Prithvi Wing, 2nd Floor, Room No. 216  
Indira Paryavaran Bhawan, Aliganj,  
JorBagh Road, New Delhi - 110003
3. The Joint Secretary  
Ministry of Power  
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4. The Regional Director,  
Central Pollution Control Board  
PICUP Bhawan, Ground Floor  
Vibhuti Khand, Gomti Nagar  
Lucknow-226010
- ✓ 5. The Divisional Head - IT, CPCB



(A. Sudhakar)  
Member Secretary