

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 98/MP/2017**

**Coram:**

**Shri P.K.Pujari, Chairperson  
Shri A. K. Singhal, Member  
Shri A.S. Bakshi, Member  
Dr. M.K. Iyer, Member**

**Date of Order: 20<sup>th</sup> July, 2018**

**In the matter of**

Petition under Section 79 of the Electricity Act, 2003 read with Regulation 14 (3) (ii) and Regulation 8 (3) (ii) of the CERC (Terms and Condition of Tariff) Regulations 2014 for approval of expenditure on installation of various Emission Control Systems as detailed, for compliance of Ministry of Environment and Forests and Climate Change, Government of India, Notification dated 7.12.2015 mandating compliance with revised Environmental norms for Thermal Power Stations.

**And**

**In the matter of**

NTPC Ltd  
NTPC Bhawan,  
Core-7, SCOPE Complex,  
7, Institutional Area, Lodhi Road,  
New Delhi-110003

.....Petitioner

**Vs**

1. Uttar Pradesh Power Corporation Ltd  
Shakti Bhawan, 10<sup>th</sup> Floor, 14, Ashok Road,  
Lucknow - 226001

2. Jaipur Vidyut Vitaran Nigam Ltd  
Vidyut Bhawan, Janpath,  
Jaipur - 302205

3. Ajmer Vidyut Vitaran Nigam Ltd  
Vidyut Bhawan, Panchasheel Nagar,  
Makarwali Road, Ajmer - 305001

4. Jodhpur Vidyut Vitaran Nigam Ltd  
New Power House, Industrial Area,  
Jodhpur - 342003

5. Tata Power Delhi Distribution Ltd  
NDPL House, Hudson lines, Kingsway Camp, Delhi -110 009



6. BSES Rajdhani Power Ltd  
BSES Bhawan, 2<sup>nd</sup> Floor, B-Block,  
Behind Nehru Place Bus Terminal, Nehru Place  
New Delhi - 110 019
7. BSES Yamuna Power Ltd  
2<sup>nd</sup> Floor, B-Block, Shakti Kiran Building,  
Near Karkardooma Court,  
New Delhi - 110092
8. Haryana Power Purchase Centre,  
Shakti Bhawan, Energy Exchange,  
Room No. 446, Top Floor, Sector, 6  
Panchkula - 134109
9. Punjab State Power Corporation Ltd  
The Mall, Secretariat Complex,  
Patiala - 147 001
10. Himachal Pradesh State Electricity Board,  
Vidyut Bhawan, Kumar Housing Complex Building -II,  
Shimla-171004
11. Power Development Department,  
Government of J&K, SLDC building, 1<sup>st</sup> floor,  
Gladani Power House, Narwal,  
Jammu-190009
12. Power Department,  
Union Territory of Chandigarh,  
Sector 9D, Chandigarh-160019
13. Uttarakhand Power Corporation Ltd  
Urja Bhawan, Kanwali Road, Near Balliwala Chowk  
Dehradun - 248 001
14. Madhya Pradesh Power Management Company Ltd  
Block No. 11, Ground floor, Shakti Bhawan, Vidyut Nagar,  
Jabalpur- 482008
15. Maharashtra State Electricity Distribution Company Ltd  
'Prakashgad', 4<sup>th</sup> Floor, Bandra (East)  
Mumbai-400051
16. Gujarat Urja Vikas Nigam Limited  
Vidyut Bhavan, Race Course,  
Vadodara- 390007
17. Chhatisgarh State Power Distribution Company Ltd  
P.O. Sunder Nagar, Dhagania,  
Raipur- 492013



18. Electricity Department  
Govt. of Goa, 3<sup>rd</sup> Floor, Vidyut Bhavan,  
Tiswadi, Panaji, Goa-403001

19. Electricity Department  
Administration of Daman & Diu  
Plot No.35, OI DC Complex, Near fire station, Somnath  
Daman- 396210

20. Electricity Department  
Administration of Dadra & Nagar Haveli  
66 kV, Amla Ind.Estate  
Silvassa-396230, Dadra & Nagar Haveli

21. West Bengal State Electricity Distribution Company Limited  
Vidyut Bhawan, Bidhan Nagar,  
Block-DJ, Sector-II, Salt Lake City,  
Kolkata- 700091

22. Bihar State Electricity Board  
Vidyut Bhawan, Bailey Road,  
Patna- 800021

23. Jharkhand Urja Vikas Nigam Limited  
Engineering Building, HEC, Dhurwa,  
Ranchi- 834004

24. Grid Corporation of Orissa Limited  
Vidyut Bhawan, Janpath,  
Bhubaneswar- 751022

25. Power Department  
Govt. of Sikkim  
Kaji Road, Gangtok- 737101

26. AP Eastern Power Distribution Company Limited  
P & T colony, Seethamadhara,  
Vishakhapatnam, AP- 530013

27. AP Southern Power Distribution Company Limited  
Corporate office, Srinivasasa Kalyana Mandapam Backside  
Tiruchanoor Road, Kesavayana Gunta  
Tirupati- 517501

28. Telangana Northern Power Distribution Company Limited  
H. No. 2-5-31/2, Vidyut Bhavan, Nakkalagutta,  
Hanamkonda, Opp. Nit Petrol Pump, Chaitanapuri, Kaize,  
Warangal- 506004

29. Telangana Southern Power Distribution Company Limited  
Formerly Ap Central Power Distribution Company Limited  
Mint Compound, Hyderabad- 500063



30. Electricity Department  
Government of Puducherry,  
137, Netaji Subhash Chandra Bose Salai  
Puducherry - 605001
31. Tamil Nadu Generation & Distribution Corporation Ltd  
NPKRR Maaligai, 144, Anna Salai,  
Chennai-600 002
32. Kerala State Electricity Board  
Vaidyuthi Bhavanam, Pattom,  
Thiruvananthapuram - 695004
33. Bangalore Electricity Supply Company Ltd  
K.R. Circle, Bangalore-506001
34. Mangalore Electricity Supply Company Ltd  
Paradigm Plaza, AB Shetty Circle,  
Mangalore-575001
35. Chamundeshwari Electricity Supply Company Ltd  
CESC Corporate Office No. 29, Ground Floor,  
Kaveri Grameena Bank Road, Vijayanagar 2<sup>nd</sup> Stage,  
Mysore- 570009
36. Gulbarga Electricity Supply Company Ltd  
Main road, Gulbarga,  
Karnataka - 585102
37. Hubli Electricity Supply Company Ltd  
Navanagar, PB Road, Hubli,  
Karnataka - 580025
38. Assam State Electricity Board  
Bijulee Bhawan, Paltan Bazar,  
Guwahati- 781001
39. New Delhi Municipal Council  
Palika Kendra Building, Opposite Jantar Mantar,  
Parliament Street, New Delhi- 110001
40. Military Engineering Services  
Delhi Cantonment,  
New Delhi- 110002
41. Damodar Valley Corporation  
DVC Towers, VIP Road,  
Kolkata-700054
42. North Bihar Power Distribution Co. Ltd.  
2<sup>nd</sup> Floor, Vidyut Bhawan, Bailey Road,  
Patna-800001



43. Meghalaya Energy Corporation Limited,  
Lumjingshai, Short Round Road,  
Shillong-793001

44. Department of Power  
Government of Arunachal Pradesh,  
Itanagar-796001

45. Manipur State Electricity Distribution Company Limited  
Keishampat, Imphal-795001

46. Department of Power  
Government of Nagaland,  
Kohima-797001

47. Tripura State Electricity Corporation Limited  
Bidyut Bhawan, North Banamalipur,  
Agartala-799001

....Respondents

**Parties present:**

Shri Venkatesh, Advocate, NTPC  
Shri Pratyush Singh, Advocate, NTPC  
Shri Somesh Srivastava, Advocate, NTPC  
Shri Vikas, Advocate, NTPC  
Ms. Swapna Seshadri, Advocate, GUVNL  
Shri Rajkumar Mehta, Advocate, GRIDCO  
Ms. Himanshi Andley, Advocate, GRIDCO  
Shri R.B.Sharma, Advocate, BSPHCL  
Shri Dushyant Manocha, Advocate, BRPL  
Shri Buddy Ranganathan, Advocate, BRPL  
Shri S. Vallinayagam, Advocate, TANGEDCO  
Shri Raunak Jain, Advocate, TPDDL  
Shri Vishvendra Tomar, Advocate, TPDDL  
Shri Ajay Dua, NTPC  
Shri P.B.Venkatesh, NTPC  
Shri Manish Garg, UPPCL  
Dr. Navin Kohli, MPPMCL  
Shri Nishant Grover, BYPL  
Shri Ashish Choudhary, APDCL

**ORDER**

The Petitioner, NTPC has filed the present Petition seeking the following reliefs:

*(a) Allow in-principle capital cost of approximately Rs 0.86 crore/MW for Singrauli STPS and Rs 0.78 crore/MW for Sipat STPS Stage-I required to be incurred by the Petitioner towards installation of the Emission Control System (ECS) and other associated facilities for the Projects;*



- (b) Allow incremental auxiliary consumption of 2.0% and 1.7% for computation of tariff post commissioning of the ECS and other associated facilities at Singrauli STPS and Sipat STPS Stage-I respectively;*
- (c) Allow incremental Operation & maintenance cost of 10% of the capital cost for installation of ECS and other associated facilities at Singrauli STPS and Sipat STPS Stage-I;*
- (d) Allow shutdown period required for installation and commissioning of ECS at the projects as deemed availability for payment of capacity charges;*
- (e) Allow increased expenditure on water cost required for operation of the ECS and other associated facilities at actuals;*
- (f) Allow procurement cost of limestone for operation of ECS at actuals;*
- (g) Allow procurement cost of various reagents like limestone/ urea/ ammonia for operation of ECS at actuals;*
- (h) Allow to approach to CERC for remaining ECS which is not being implemented presently, but may be required in future based on actual assessment to comply revised environmental norm; and*
- (i) Pass any such other and further reliefs as this Hon'ble Commission deems just and proper in the nature and circumstances of the present case.*

2. The Petitioner has generating stations/projects across the country and currently owns close to 40000 MW approx. coal fired thermal generating stations. The present petition is with respect to Singrauli STPS with an installed capacity of 2000 MW (5 x 200 MW + 2 x 500 MW) located in the State of UP and Sipat STPS, Stage-I with an installed capacity of 1980 MW ( 3 x 660 MW) located in the State of Chhattisgarh (hereinafter collectively called 'the Projects').

3. The Government of India, Ministry of Environment, Forest & Climate Change (MOEFCC) vide its Notification No. S.O. 3305(E) dated 7.12.2015 notified the Environment (Protection) Amendment Rules, 2015 (hereinafter called 'the MOEFCC Notification') amending/introducing the standards for emission of environmental pollutants to be followed by all existing as well as future thermal power plants. By the said Notification, all thermal power plants are mandatorily required to comply with the revised norms within the period of two years from the date of the said



Notification. By the said amendment, MOEFCC has revised the norms as detailed hereunder:

- (a) Revised the emission parameters for Particulate Matter for thermal power plants;
- (b) Introduced additional parameters/ limits for thermal power plants qua-
  - (i) Emission norms for Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) & Mercury (Hg),
  - (ii) Amount of cooling water to be used per unit
  - (iii) Directed all thermal plants with Once-Through Cooling (OTC) to install Cooling Tower (CT).

4. In the above background, the Petitioner in the present Petition has submitted the following:

- (i) As per MOEFCC Notification, the thermal generating stations are required to comply with the revised environmental norms within two years from the date of Notification i.e. 7.12.2015. The amended norms prescribed by MOEFCC Notification are tabulated as under:

Sr. No.	Industry	Parameter	Standard
5A	Thermal Power Plant (water consumption limit)	Water consumption	1. All plants with Once through Cooling shall install cooling tower (CT) and achieve specific water consumption upto maximum of 3.5 m <sup>3</sup> /MW/hr within a period of two years from the date of publication of this notification. 2. All existing CT based plants reduce specific water consumption upto maximum of 3.5 m <sup>3</sup> /MW/hr within a period of two years from the date of publication of this notification. 3. New plants to be installed after 1.1.2017 shall have to meet specific water consumption upto maximum of 2.5 m <sup>3</sup> /MW/hr and achieve zero waste water discharged
25	Thermal Power Plant	<b>TPPs (Units) installed before 31.12.2003*</b>	
		Particulate matter	100 mg/ Nm <sup>3</sup>
		Sulphur dioxide	600 mg/Nm <sup>3</sup> (units smaller than 500 MW capacity) and 200 mg/ Nm <sup>3</sup> (for units having capacity of



			500 MW & above)
		Oxides of nitrogen	600 mg/Nm <sup>3</sup>
		Mercury	0.03 mg/Nm <sup>3</sup> (for units having capacity of 500 MW & above)
		<b>TPPs (Units) installed after 1.1.2004 to 31.12.2016</b>	
		Particulate matter	50 mg/ Nm <sup>3</sup>
		Sulphur dioxide	600 mg/Nm <sup>3</sup> (units smaller than 500 MW capacity) and 200 mg/ Nm <sup>3</sup> (for units having capacity of 500 MW & above)
		Oxides of nitrogen	300 mg/Nm <sup>3</sup>
		Mercury	0.03 mg/Nm <sup>3</sup>
		<b>TPPs (Units) to be installed from 1.1.2017**</b>	
		Particulate matter	30 mg/ Nm <sup>3</sup>
		Sulphur dioxide	100 mg/Nm <sup>3</sup>
		Oxides of nitrogen	100 mg/Nm <sup>3</sup>
		Mercury	0.03 mg/Nm <sup>3</sup>

*\*Thermal Plants shall meet the limits within two years from date of publication of this Notification*

*\*\*Includes all thermal plants which have been accorded Environment Clearance and are under construction*

(ii) The instant Petition has been filed to seek regulatory certainty qua the treatment of such costs and further to seek in-principle approval from the Commission with regards to the additional capital expenditure to be incurred by the Petitioner for installation of Emission Control System (ECS), fixed cost recovery for shut down period, additional O & M expenditure and additional Auxiliary Power Consumption due to installation of ECS as a result of the MOEFCC Notification which has mandated the installation of ECS at the Projects.

(iii) In order to comply with the revised norms (as tabulated above), the Petitioner is required to install ECS, which will result in-

- (a) Additional Capital expenditure because of installation of ECS required to meet the revised norms
- (b) Increase in O & M expenses of the power station on account of installation of ECS to meet the revised norms
- (c) Increase in auxiliary consumption of the power station due to installation of ECS
- (d) Disruption in power generation during the installation phase of the above equipment
- (e) Issue of fixed cost recovery for shut down period





(iv) The details of the capital cost and auxiliary consumption requirement for the Emission Control System are as under:

**Singrauli STPS**

Sl. No	FGD System Component	Capital Cost <sup>#</sup>	Incremental Auxiliary Consumption	Shut Down Period
1a	FGD system	₹0.4 crore/MW for 200 MW Units	2.0%	180 days per Unit
b		₹0.5 crore/MW for 500 MW Units	1.5%	
2a	Chimney liner	₹10 crore/unit for 200 MW		
b		₹15 crore/unit for 500 MW		
3a	Relocation cost as no space was kept for FGD	₹200 crore		
4a	Reagent cost	₹2.25 lakh/ MW/ annum for 200 MW		
b	Reagent cost	2.75 lakh/MW/annum for 500 MW		
5	ESP System	351 crore		The compensation @ 50 MW for 360 days for each 200 MW unit (tentative) subject to actual period of execution.
6	De-Nox System (Combustion Modification)	₹0.02 crore/ MW		15 days per Unit
7	Mercury Emission	Presently no modification proposed, however, will approach Commission as and when implemented.		The shutdown period not envisaged in case of schemes not being done presently. However, appropriate shut down period may also be allowed, as and when such schemes are implemented.
8	Installation of cooling tower	Presently no modification proposed, however, will approach Commission as and when implemented.		



Sl. No	FGD System Component	Capital Cost <sup>#</sup>	Incremental Auxiliary Consumption	Shut Down Period
9	Other O&M cost: for manpower and maintenance of addition equipment	10% of equipment cost		
	<b>Total</b>	<b>₹0.86 crore/ MW</b>	<b>2.0%</b>	

#### Sipat STPS

S No	FGD System Component	Capital Cost <sup>#</sup>	Incremental Auxiliary Consumption	Shut Down Period
1	FGD system	₹0.5 crore/MW	1.5%	180 days per Unit
2	Chimney liner	₹18 crore/Unit		
3	Reagent cost	₹2.75 lakh/ MW/ annum		
4	De-Nox System (Combustion Modification and Installation of SNCR)	0.25 crore/MW	0.2%	90 days per Unit
5	Reagent cost	₹2.0 lakh/ MW/ annum		
6	Other O&M cost- for manpower and maintenance of addition equipment	10% of equipment cost		
7	ESP	Presently no modification proposed, however, will approach Commission as and when implemented.		The shutdown period not envisaged in case of schemes not being done presently. However, appropriate shut down period may also be allowed, as and when such schemes are implemented.
8	Mercury emission	Presently no modification proposed, however, will approach Commission as and when implemented.		
	<b>Total</b>	<b>₹0.78 crore/ MW</b>	<b>1.7%</b>	

*# This is estimated capital cost and same may change upon finalisation of technology supplier and lenders.*



(v) The MOEFCC notification is a mandatory 'Change in law' event which requires the Petitioner to carry out major capital works/modifications for it to be able to operate the Projects and supply power to the beneficiaries. As such, the petitioner is obliged to incur substantial one time capital expenditure apart from recurring operational expenditure and additional increase in cost due to operational parameters. Hence, the present Petition has been filed under section 79 of the Electricity Act, 2003 read with Regulation 14 (3) (ii) and 8 (3) (ii) of the 2014 Tariff Regulations notified by this Commission.

(vi) Prior to the issuance of MOEFCC Notification, no norms were specified with regard to SO<sub>2</sub> emission from the station. No such requirement was specified in the Environmental Clearance obtained for the Projects of the Petitioner and accordingly no cost for emission was considered in the capital cost of the Projects. As per MOEFCC Notification, the Petitioner is required to keep SO<sub>2</sub> emissions from the Project below 600 mg/Nm<sup>3</sup> for its units smaller than 500 MW and SO<sub>2</sub> emissions below 200 mg/Nm<sup>3</sup> for units equal to or larger than 500 MW. With the quality of coal, being fired at the Projects, the SO<sub>2</sub> emissions is expected to be in the range of 700-800 mg/Nm<sup>3</sup> and 650-750 mg/Nm<sup>3</sup> respectively for units smaller than 500 MW and equal to/larger than 500 MW, which is far more than the revised norms. To comply with the said norms, the Petitioner is required to install Flue Gas Desulfurization (FGD) system in the Projects in order to reduce excess of SO<sub>2</sub> from exhaust flue gases of the Projects.

(vii) The cost of installation of FGD system which consists of Flue Gas Duct System, Absorber System, Booster Fan, Limestone Handling System, etc., is



estimated to be ₹0.4 crore to ₹0.5 crore/MW (approx) with an installation period of 30-36 months (approx) starting from NTP issued to the contractor. The above cost is inclusive of Capital Expenditure, Pre-Operative Expenses, Designing & Engineering and Project Management cost, but excludes IDC and any other incidental cost during construction.

(viii) The FGD will require 0.1 MT/ year (approx) of limestone for a 1000 MW capacity plant which translates into ₹25 crore per annum. The indicative consumption of water would be around 0.3 m<sup>3</sup>/hr. The values for consumption of limestone and water will be firmed up upon deciding on the technology supplier.

(ix) The FGD will incur additional recurring cost towards O & M, disposal of waste and spares which is likely to be around 10% of the capital cost. The installation of FGD will also lead to an increase in Auxiliary Power Consumption of the station in the range of 1.5%- 2% which is required to be considered for computation of tariff. In addition, it is expected that there will be disruption in power generation during installation and commissioning of FGD which is expected to be for 4-6 months per unit. The non-availability of the Projects due to installation activities of the FGD system may be considered as deemed availability for the payment of capacity charges.

(x) Prior to the issuance of the MOEFCC Notification, there was no restriction on consumption of water. As per the said Notification, the maximum water consumption for all existing CT based plants is limited to 3.5 m<sup>3</sup>/MW. The Petitioner seeks liberty to approach the Commission if any



additional measures need to be implemented involving additional costs and / or operating costs to comply with the said condition.

(xi) Subsequent to the MOEFCC Notification, the Particulate Matter (PM) is limited below 50 mg/Nm<sup>3</sup> for the stations commissioned between 1.1.2004 & 31.12.2016 and 100 mg/Nm<sup>3</sup> for stations commissioned before 31.12.2003. The recorded value of PM at Singrauli STPS are higher than 100 mg/Nm<sup>3</sup> and Sipat STPS are in range of 50 mg/Nm<sup>3</sup>. Accordingly, the Petitioner is required to install additional Electrostatic Precipitator System (ESP) as part of Singrauli STPS to reduce PM from the station. In addition, the Petitioner is required to carry out up-gradation of control system and transformer rectifier set.

(xii) The Commission in exercise of its power under section 178 read with section 61 of the Act has notified the 2014 Tariff Regulations. The said regulations set out the principles for determination and recovery of tariff. It is abundantly clear from Regulations 14(3)(ii) and 8(3)(ii) of the 2014 Tariff Regulations that the Commission was cognisant that Change in law events can impact a generator and therefore in its wisdom allowed the same to be trued up. The object of change in law as per the said regulation is to ensure compensation to the party affected by such change in law and to restore the affected party to the same economic position as if such change in law has not occurred.

(xiii) The issuance of MOEFCC Notification which constitutes a Change in law event, has occurred after COD of 'the Projects' and the same was not taken into account by the Commission while fixing the norms for tariff of the



Petitioner. The present situation is beyond the contemplation or legitimate expectation of the parties as the Change in law mandatorily requires the Petitioner to incur major additional capital and operational expenditure to comply with the revised norms.

(xiv) The change in environmental parameters vide MOEFCC Notification constitutes a Change in Law in terms of Regulation 14(3)(ii) and 8(3)(ii) of the 2014 Tariff Regulations which has a substantial impact on the capital and operational cost of the Projects. The Petitioner also seeks regulatory approval of the additional one time capital expenditure, recurring annual operating expenditure and impact due to adverse impact on the performance parameters of the project.

(xv) The Petitioner is approaching the Commission at this stage as substantial investment is required to carry out the capital works to meet the revised norms. This would require retrofits and installation of additional equipment's for which substantial capital expenditure is required. In addition to this, there would be substantial impact on the O&M costs, impact on plant efficiency parameters such as Auxiliary Consumption, Unit Heat Rate etc. The expenditure/costs are only indicative and based on preliminary studies carried out on behalf of the Petitioner. However, the actual adjustment of tariff will be based on actual amount spent, subject to prudence check.

5. The Petitioner has submitted that the Appellate Tribunal for Electricity (hereinafter referred to as 'the Tribunal') in its judgment dated 15.2.2011 in Appeal No. 173/2009 (TPCL v MERC) had held that statutory expenses are uncontrollable factors and generators should be allowed for pass through of



uncontrollable factors. Referring to the judgments of the Tribunal in Appeal No. 170/2010 (MPPGCL v MPERC & ors) and Appeal No. 273/2007 (DVC v CERC & ors), the Petitioner has submitted that the Tribunal in these cases had held that tariff is a reflection of costs and unless there is imprudence in the manner in which the cost is incurred, the expenditures of the generators under Section 62 should be passed on. Accordingly, the Petitioner has claimed the reliefs as stated in para 1 above.

6. Some of the generators namely Coastal Gujarat Power Limited (Petition No. 77/MP/2016), Sasan Power Limited (Petition No.133/MP/2016) had also submitted similar Petitions claiming in-principle approval of the projected additional capital expenditure for compliance with the revised environmental norms under 'Change in Law'. Accordingly, the Commission vide letter dated 26.6.2016 had requested CEA to convey its recommendations on the following:

- (a) Impact of the revised environment standards as per the Environment (protection) Amendment Rules, 2015 on the operational norms of the Coal based thermal generating stations specified by the Commission in the Tariff Regulations, 2014
- (b) The types of Flue Gas Desulfurization (FGD), selective non-catalytic reduction system (SNCR)/ Selective Reduction (SCR) systems feasible to be installed and their impact on operation norms;
- (c) Impact on operational norms on account of modification of cooling system from open cycle to comply the norms of water consumption;
- (d) Indicative cost of implementation of environment standards, if available with CEA;
- (e) Any other matters related with implementation of the new environment standards.

7. CEA vide letter dated 1.8.2016 has furnished the general aspects of the requirement of Environmental Norms, 2015 but has not made any specific



recommendations on the technology required for SO<sub>x</sub> and NO<sub>x</sub> control including the tentative cost involved.

8. The Petition was admitted on 27.7.2017 and the Commission directed the parties to complete the pleadings in the matter. The Respondents, UPPCL, GRIDCO, BRPL, TPDDL, TANGEDCO, MPPMCL, CSPDCL, PSPCL, BSP(H)CL have filed their replies in the matter and the Petitioner has filed its rejoinder to the same. The Commission after hearing the matter on 23.4.2018 directed the parties to file their written submissions and accordingly reserved its orders in the Petition. The Petitioner and Respondents, GRIDCO & BRPL have filed their written submissions in the matter.

#### **Submissions of the Respondents**

9. The Respondent No.1, Uttar Pradesh Power Corporation Ltd (UPPCL) vide affidavits dated 16.6.2017 and 5.9.2017 has mainly submitted the following:

(i) The Petitioner may be directed to submit station wise Petitions rather than clubbed Petition since different stations are at different stages of life and would require capital and O&M expenditure to meet the norms under the MOEFCC Notification.

(ii) It needs to be assessed over what life of the plant would the expenditure be feasible and what additional investments are required to extend the life. A complete RLA study along with DPR for life extension needs to precede approval for compliance with the MOEFCC Notification.

(iii) The proposal of the Petitioner may be evaluated by technical competent body like the CEA to assess the costs (both capital & revenue) along with impact on Auxiliary Consumption. Payment of capacity charges as deemed availability during





installation and commissioning of the ESP system is against all established norms and precedents. Also, the claim for partial loss needs to be technically evaluated.

(iv) During the period of shut down the claim of the Petitioner needs to be restricted to actual administrative and interest expenses. The Petitioner has not submitted any basis on which the claim for compensation for partial loss has been determined.

10. The Respondent No.5, Tata Power Delhi Distribution Limited (TPDDL) vide affidavit dated 18.8.2017 has submitted the following:

(i) Since the Petitioner has chosen to file the present Petition with details in respect of two generating units only, i.e. Singrauli & Sipat, any decision given by the Commission in the present petition would equally be applicable to all other units of the Petitioner and bind them. Thus, the Petitioner ought to affirm that it is giving up its claim in respect of all other units whose details have not been furnished by choosing to pursue the present petition. In case, such affirmation is not given, the Petition is not maintainable with details of the two generating stations only.

(ii) The present Petition has been made for approval of capital expenditure and truing up of tariff of the generating station. However, no proper application under Section 64 of the Electricity Act, 2003 has been made by the Petitioner. The mandatory provisions under Section 62(2) have not been followed and hence the present petition is liable to be dismissed in limine.

(iii) The Petition is not maintainable since the 2014 Tariff Regulations do not provide for grant of any 'in-principle' approval for the capital expenditure or any other such associated reliefs claimed by the Petitioner.



(iv) The Petition in the present form is premature and not maintainable. Whether there is change in law or not, it is for the Petitioner to comply and incur expenditure as per prudent commercial discretion and practices. The Commission is only required to carry out prudence check once the expenditure has actually been incurred by the generating company.

(v) In Petition No.72/MP/2016 filed by Maithon Power Ltd seeking in-principle approval of the 'Abstract Schemes' of capital expenditure in compliance with the MOEFCC Notification, the Commission vide order dated 20.3.2017 disposed of the Petition refusing to grant in-principle approval. Thus in terms of the said order, the prayer of the Petitioner in the present Petition is also not maintainable.

(vi) The prayers of the Petitioner for allowance of incremental auxiliary consumption, O&M cost, water cost, procurement cost of limestone, consumption cost of various reagents etc., shall not at all restore the position of the Petitioner, prior to the occurrence of such 'change in law' event since the Petitioner has not been incurring any such incremental costs.

(vii) The prayer for allowance of shut down period for installation and commissioning of ECS as 'deemed availability' for payment of capacity charges has no legal basis since the 2014 Tariff Regulations do not provide for any such 'deemed availability' and there shall be no such declaration of readiness by Petitioner during shut down. Only two elements O&M and Interest on Loan as part of the annual fixed charges are entitled to be recovered by the Petitioner.

11. The Respondent No.14, MP Power Management Company Ltd (MPPMCL) vide affidavit dated 4.9.2017 has submitted as under:



(i) The 2014 Tariff Regulations do not provide for grant of any 'in-principle approval' for the capital expenditure or any other such associated reliefs as claimed by the Petitioner and hence the Petition is liable to be rejected.

(ii) The Petitioner may be directed to submit station-wise Petition as different stations would require different capital and O&M expenditure to meet MOEFCC norms and the beneficiaries are also different. The Respondents submissions are with regard to Sipat STPS, Stage-I.

(iii) The implementation of emission norms may not be allowed to burden the beneficiaries as the stringent norms has many areas of concern. The subject requires critical review on various aspects including (a) Availability of technology and technical knowhow (b) Cost benefit analysis of implementing these norms (c) Effect on ultimate consumers. The stringent norms notified by MOEFCC may be made mandatory at present in case of upcoming projects only to be commissioned on or after 1.4.2019. Further, these norms can be implemented in a gradual manner over a time frame of 10 years or so, in case of existing projects. Plants which have completed their useful life may not be compelled for implementation of these norms as such huge capital investment may not be worthwhile.

(iv) Huge capacity addition in renewable energy sources will further reduce the dependence on conventional thermal power plants and most of them will remain idle except in case of emergency. Keeping this in view, the proposed huge investment in old and existing thermal power plants appears to be unjustified.

(v) The State discoms are reeling under acute financial shortage and resource crunch and it is not possible for them to sustain such a huge additional financial burden on account of implementation of these emission norms. MOP, GOI may be



advised to incorporate the expenditure on implementation of MOEFCC norms as a scheme requiring support from PSDF in order to alleviate the impact on the discoms.

(vi) The Petitioner is obliged to carry out social welfare activities under its Corporate Social Responsibility (CSR). The Petitioner may be directed to accumulate the fund of CSR and the same may be applied in partly funding the new emission norms.

(vii) The prayer of the Petitioner is not maintainable as the Petitioner cannot be allowed to take advantage of the 'change in law' event and put in a more beneficial position than that prior to its occurrence. Hence, the prayers of the Petitioner are liable to be dismissed.

12. The Respondent No.31, TANGEDCO vide affidavit dated 6.10.2017 has submitted that the Petition is liable to be dismissed for the following reasons:

(i) The enactment of a law or change in law does not ipso facto entitle the petitioner to claim financial implications of the same from the beneficiaries. The Petitioner is responsible for discharging its CSR towards a clean environment. It should bring on record its Income-tax returns with the bifurcation of expenses under various heads towards CSR.

(ii) MOEFCC failed to obtain comments of all stakeholders before issuing the notification. The efficiency level of the generating station will not have any beneficial impact due to incurring of expenditure towards emission control equipment.

(iii) The indicative expenditure towards installation of equipment's furnished by the Petitioner is not supported by any documentary proof to justify reasonableness of



cost. The petitioner has not submitted any DPR towards installation of the emission control equipment

(iv) In the event of including the expenditure towards compliance to MOEFCC Notification in the capital expenditure, the same will increase the annual capacity charges determined by the Commission and in turn will affect the financial viability of the companies.

(v) Many of the generating stations of the Petitioner have served the useful life and are nearing their life period. In the present scenario where Renewable Energy plays a vital role to reduce carbon footprints, it is necessary to ascertain the benefits accruing out of investments made in coal based thermal stations.

(vi) The Commission in its various orders determining the tariff of the generating stations of the petitioner had allowed additional capital expenditure related to the Installation of ESPs and Installation of De-NO<sub>x</sub> system for the period 2014-19. Therefore, the reasonableness of the expenditure is to be studied to ascertain what benefits it will bring to consumers before passing it on to beneficiaries. On the issue of installation of emission control equipment's to comply with the directions of MOEF, the Commission in its order dated 20.3.2017 in Petition No. 72/MP/2016 (MPL v DVC) has given certain directions. Therefore, the Commission may constitute a committee comprising of Members of CEA, MOP and RPC to consider the suggestions of the State discoms and take final decision on the issue.

(vii) The Petitioner has not established the actual impact of change in law with precise details in respect of all its generating stations. The Petitioner has also not suffered any financial implication due to the said MOEFCC Notification.

13. The Respondent No. 24, GRIDCO vide affidavit dated 21.10.2017 has submitted that the Petition is not maintainable for the following reasons:



(a) There is no provision in the 2014 Tariff Regulations specified by the Commission for such in-principle approval and indicative expenditure. The Petition is therefore not maintainable under Section 2(1) of the 2014 Tariff Regulations.

(b) The Petition in respect of sample stations is not admissible because of different characteristics of generating stations such as age, capacity, construction, different beneficiaries, nature of changes required to retrofit the ECS etc.,

(c) The Petitioner has not given the details of the impact of installation of ECS on tariff payable by the Respondents. In the absence of such details, it is not possible for the beneficiaries to examine the validity of the claim of the Petitioner.

(d) The Petitioner is required to approach the CEA on associated cost and affordability by consumers for compliance with the revised Environmental norms. The technical feasibility, effectiveness, affordability, increase in Auxiliary consumption and disruption in power generation during installation need to be studied by CEA.

(e) The Commission may request CEA to study whether the ECS as per the revised norms of MOEFCC are absolutely necessary in view of (i) PLF of thermal power stations is on a declining trend (ii) Installed capacity of Green Energy sources on rising trend (iii) Renewable Energy expansion plan to the year 2022 is 175 GW.

(f) The Petition is not maintainable since the 2014 Tariff Regulations do not provide for in-principle approval of the additional capital expenditure as



observed by the Commission in Order dated 20.3.2017 in Petition No. 72/MP/2016.

(g) Without prejudice to the above, this Petition is not maintainable in the absence of following prevailing Base Level Data for generating stations such as (i) Present Specific Water Consumption for all generating stations (ii) Present Ambient Emission levels of Particulate Matter, Oxides of Nitrogen, Sulphur Dioxide, Mercury of thermal generating stations of NTPC as per Central/State Pollution Control Boards.

(h) There is no basis for arriving at the cost of the Systems, their Installations and Recurring costs etc., required to meet the Environmental norms. It is also not clear whether NTPC has arrived at the costs basing on any Competitive bidding or through any transparent mode as per public procurement.

(i) The Petitioner may take up with MOEFCC for introduction of Environmental norms in the following manner (i) exclude all plants which will complete 25 years of useful life by 2022-23 from Environmental Compliance Requirement Norms (ii) Plants in operation with substantial remaining useful life may be allowed 5 years extension of time for implementation of revised norms beyond the present cut-off date of 31.12.2017.

(j) The expenditure towards the procurement, Installation and all other associated costs of ECS should be met from PSDF, Clean Energy Cess on Coal and CSR.

14. The Respondent No. 17, CSPDCL vide affidavit dated 24.11.2017 has mainly submitted the following:

(i) There is no provision under the 2014 Tariff Regulations for 'In-principle' approval of any tentative capital expenditure and thus the reliefs claimed by the



Petitioner are without legal basis and hence the Petition is not maintainable. The Petitioner is seeking separate reliefs for two different stations through a common petition which is also not permissible as per the 2014 Tariff Regulations.

(ii) As directed by the Commission in order in Petition no. 72/MP/2016 related to MPL, the Petitioner may be directed to take up necessary steps and then approach the Commission. If the expenses claimed by the Petitioner is allowed to be capitalized, then the per unit generation cost will increase considerably which will result in higher purchase cost.

(iii) The impact of such additional capitalization will be enormous and generation of power from a thermal power plant may become financially unviable. Since the proposed expenses are substantial, the Commission may conduct a public hearing in the matter.

(iv) The Petitioner may be directed to take up the matter with GOI for getting fund in the form of 'Grant' equivalent to one time expenses likely to be incurred for meeting the modified environment norms so that the same are not capitalized for tariff purpose.

(v) Since, the petitioner is also liable to discharge its CSR, these expenses may be met from the CSR fund.

(vi) The modified norms notified by MOEFCC may be made mandatory for the upcoming projects only and can be implemented in a gradual manner for the existing projects so that at a time only one or two plant may be taken out for installation/ renovation work so that overall availability is not reduced considerably. Further, these norms should not be made compulsory for the plants which have completed their useful life.





15. The Respondent No.22, Bihar State Power (Holding) Company Limited (BSPHCL) vide affidavit dated 5.1.2018 has submitted as under:

(i) The claim of the petitioner under Regulation 14(3)(ii) of the 2014 Tariff Regulations is not permissible as the petition has been filed after a gap of more than 16 months from the date of MOEFCC Notification although the norms were to be complied within 24 months of the said notification. This may indicate that substantial infrastructure is available to meet the environment norms as the Commission had allowed Special Allowance during the periods 2009-14 & 2014-19 for meeting the requirement of expenses including R & M.

(ii) The Petitioner has claimed compensation due to Change in law under Regulation 8(3)(ii) of the 2014 Tariff Regulations. However, the said regulation only provides for truing up of the tariff if there is Change in law which may be relatable to any change in taxation system which affects the generating company.

(iii) The claim of the Petitioner for incremental Auxiliary consumption of 2% is very high as the Commission had already allowed average Auxiliary consumption norm of 6.88% in terms of Regulation 47 of the 2014 Tariff Regulations.

(iv) As the O & M expenses specified under the 2014 tariff Regulations are based on norms and not on actuals, no incremental O & M cost over & above the norm is permissible.

(v) There is no provision to consider the shutdown period for installation & commissioning of ECS as deemed availability and hence the prayer of the petitioner may be rejected.



(vi) The claim of the petitioner as regards the procurement cost of Limestone is not permissible as the petitioner is already availing Special Allowance for the period 2014-19.

(vii) The claim of the petitioner regarding consumption cost of various regents like urea, ammonia etc., is liable to be rejected as the O & M expenses are based on norms and not on actuals. The Commission may examine the normative Return on Equity of 15.5% under the 2014 Tariff Regulations when the cost of debt has reduced.

16. The Respondent No. 6, BRPL vide affidavit dated 22.2.2018 has raised the issue of maintainability of the Petition and has submitted the following:

(i) The Commission in Petition No. 72/MP/2016 had held that Regulations 14(3) and 8(3) of the 2014 Tariff Regulations do not provide for 'in-principle' approval of the capital expenditure. Accordingly, the claim of the petitioner is premature and is liable to be rejected.

(ii) The Petitioner, in the absence of any readiness of the plant due to shut down, cannot claim Deemed Availability for payment of capacity charges and can recover part annual fixed charges which includes O & M expenses and interest on loan only.

(iii) The prayer of the Petitioner for allowance of incremental Auxiliary Consumption, O & M expenses, water cost, procurement of limestone etc., are not maintainable, as the Petitioner is seeking truing-up of the expenses that have not occurred.

(iv) Singrauli STPS has completed its useful life of 25 years and the claim of the Petitioner for ₹1700 crore to comply with the MOEFCC Notification should be rejected.



(v) The Petitioner has been availing Special Allowance under Regulation 16 of the 2014 Tariff Regulations and thus the claim for further allowance of additional capital expenditure cannot be allowed.

17. The Respondent No.9, Punjab State Power Corporation Limited vide affidavit 22.3.2018 has mainly submitted the following:

(i) The tariff can be claimed station wise, unit wise and a general Petition claiming an event as Change in law cannot be made, except at the time of truing-up wherein the claims under uncontrollable factors can be made.

(ii) The Petitioner has not furnished all the relevant Environmental Clearances pertaining to each of its generating stations. Further, no DPR has been prepared by the Petitioner for each of its generating station, comparison of available technologies and generating station wise cost of implication.

(iii) The cost implication comes to ₹1 per unit as per the claims of the Petitioner. Hence, it would be better to scrap the old plants and introduce new ones with latest technology.

### **Rejoinder of the Petitioner to the replies of Respondents**

18. In response to the above replies, the Petitioner has filed its rejoinder and has mainly submitted the following:

(i) The life of the power plant is not an issue and therefore, even if Singrauli STPS has completed its useful life of 25 years, it has to comply with the norms of the MOEFCC Notification by installing and commissioning ECS.

(ii) The Commission may take a view as regards evaluation by a technical competent body like CEA. However, the process of granting in-principle approval



needs to be expedited as it is necessary for arranging funds for implementation of ECS.

(iii) Certain interfacing works and commissioning works may result in disruption of power generation during installation & commissioning of the ECS. However, such power disruption will be on account of compliance of a statutory mandate and not due to any optional activity.

(iv) The Petitioner can claim compensation for partial loss of generation occurred based on actuals during installation and commissioning, after implementation of ECS.

(v) The present Petition is with respect to approval of indicative expenditure to be incurred by two stations (Singrauli STPS & Sipat STPS Stage-I) only as a sample case and the approval will facilitate for taking investment approvals for other stations of the Petitioner.

(vi) The Commission under its regulatory jurisdiction has incidental powers to grant in-principle approval even if it is not specifically provided in the Regulations

(vii) A substantial investment is required to carry out the capital works to meet the revised norms as per the MOEFCC Notification. Hence, the present Petition is filed to seek regulatory certainty qua the treatment of such costs and in principle approval of the cost to be incurred.

(viii) CSR primarily focuses on social welfare projects such as rural development, promoting education etc. However, MOEFCC Notification is mandatory in nature and not in form of CSR and it is mandatory for all thermal plants to carry out the changes to meet the revised norms.



(ix) The expenditure claimed under the Petition is only indicative and based on preliminary studies and expenditure incurred at some of the Petitioner's projects. Major expenditure envisaged for compliance of emission norms consist of FGD system and ESP cost. However, the actual adjustment of tariff will be based on actual expenditure incurred.

(x) The Petitioner is not seeking compensation on account of scheduling provided below the technical minimum schedule, rather claiming approval of the cost to be incurred on account of Change in law events.

(xi) In Petition No. 72/MP/2016, the in-principle approval was sought under Regulation 54 (Power to relax) of the 2014 Tariff Regulations, whereas in the instant case, approval has been sought under the regulatory powers of the Commission which are of very wide magnitude as compared to Power to relax.

(xiii) There is no justification to approach GOI to get one time refund. Since the Notification dated 7.12.2015 affects all the thermal generating stations, the cost is required to be serviced through tariff.

(xiv) The installation of ECS is based on the directions and notification of statutory body and the same cannot be envisaged beforehand and therefore cannot be accounted for while framing any normative allowances. Further, the Special Allowance granted is with regard to R & M works.

(xv) Incurrence of the expenses arising from the MOEFCC Notification has no relation to the grant of Special Allowance availed by the Petitioner. Regulation 16 dealing with Special Allowance is an alternative for determination of the capital expenditure to be allowed on R & M and the same is independent of the provisions of Regulation 14(3)(ii) dealing with Change in law or compliance of the existing law.



(xvi) The disruption of power due to compliance of MOEFCC Notification is an unprecedented scenario not factored under the 2014 Tariff Regulations. Accordingly, the Commission may allow the shutdown period required for installation & commissioning of FGD system as deemed availability for payment of fixed charges.

### **Submissions during the hearing**

19. Learned Counsel for the Petitioner submitted the following during the hearing of the Petition on 23.4.2018:

(a) The MOEFCC notification dated 7.12.2015 mandatorily require all thermal power plants installed till December, 2016 to comply with the revised norms. The MOEFCC notification is a Change in law event which requires the Petitioner to carry out major capital works/modifications at substantial expenditure and recurring operational cost in order to operate the Projects and supply power to the beneficiaries.

(b) As the 2014 Tariff Regulations notified by the Commission provides for determination of tariff based on projected expenditure, the concept of in-principle approval is inbuilt in the regulations. The in-principle regulatory approval of additional cost would be critical for securing finances from financial institutions. The said approval of Change in law event would ultimately lead to adjustment of tariff based on actual amount spent, subject to prudence check by the Commission.

(c) Even if the 2014 Tariff Regulations are considered silent on the aspect of in-principle approval, the Central Commission in exercise of its regulatory powers can issue directions in furtherance to the objective of the 2003 Act.



Even otherwise, as per the Judgments of the Hon'ble SC in PTC v/s CERC (2010 4 SCC 603), Energy Watchdog case (2017 14 SCC 80), UPSEB v/s City Board, Mussorie (AIR 1985 SCC 883), the absence of Regulation is never a precondition for granting any relief under the statute.

(d) The Commission may approve the shut-down period required for installation & commissioning of FGD system as deemed availability under the PPA for payment of fixed charges.

(e) Special Allowance under the 2014 Tariff Regulations is an alternative to R & M which contemplates expenditure to increase the life of the plant whereas the obligation to comply with the MOEFCC Notification has nothing to do with the useful life of the plant.

20. The learned counsel for Respondents, BRPL, GRIDCO and PSPCL submitted the following:

(a) The Petition is not maintainable as 2014 Tariff Regulations do not have any provision for in-principle approval for expected capital expenditure. The Commission is bound by the provisions of the Tariff Regulations.

(b) The Commission in its order dated 20.3.2017 in Petition No.72/MP/2016 and order dated 14.10.2009 in Petition No. 153 of 2009 has rejected similar claims for in-principle approval.

(c) The Commission may request CEA to study whether the ECS as per revised norms of MOEFCC are absolutely necessary. The said notification has not specified mandatory installation of ECS irrespective of whether the generating stations meet emission norms or not.



(d) The Petitioner has not placed on record all the relevant environment clearances pertaining to each of its generating stations. Further, in terms of Regulation 7 (1) of the 2014 Tariff Regulations, the application for tariff is required to be made unit-wise and generating station wise and not in a general form. The Petitioner has the liberty to approach the Commission at the time of truing-up, wherein claims under uncontrollable factors can be made.

21. The Petitioner and the Respondents (BRPL, GRIDCO and PSPCL) have filed their written submissions mainly on the lines argued during the hearing.

### Analysis and Decision

22. The Petition was heard by the Commission comprising of the Chairperson, three Members of the Commission and the Chairman, CEA as Member (ex-officio) and order was reserved on 23.4.2018. The Member (ex- officio) has demitted office on 30.6.2018, before issuance of the order in the present Petition. A similar issue came up for consideration before the Appellate Tribunal for Electricity (the Tribunal) in Appeal No. 204/2010 and the Tribunal held as under:

*“11. The sixth issue is regarding validity of the impugned order as it is not signed by the third Member who had heard the petition alongwith other Members when the representations of the objectors was considered by the State Commission on 18.2.2010.*

Xxxxx

*11.3. We notice that at the time of public hearing on 18.2.2010, three Members of the State Commission heard the objections filed by the consumers and various other groups. However, the order was passed on 13.9.2010. In the meantime, one of the Members retired on 24.2.2010, therefore, the order was signed by the Chairperson and remaining one Member. In this connection, Section 93 of the Act is reproduced below:*

xxxxx

*11.4. We do not find any force in the arguments of the learned counsel for the appellants that the general principle of natural justice would be applicable in this case. It has been held by the Hon'ble Supreme Court in the PTC case that the Electricity Act, 2003 is a complete Code. Therefore, in this case Section 93 of the Act will apply. Accordingly, we hold that the impugned order is valid.”*





In terms of the above decision, we have decided that the order in the Petition shall be issued by the Chairperson and three Members of the Commission who heard the matter. Accordingly, we proceed to adjudicate the disputes raised in the present Petition.

23. Based on the above submissions of the parties, following are the issues which emerge for consideration:

(a) Issue No.1: Whether the prayer for in-principle approval in the petition is maintainable in the absence of such provisions in the 2014 Tariff Regulations and in the light of the orders of the Commission dated 14.10.2009 and dated 20.3.2017 in Petition No.153 of 2009 and Petition No.72/MP/2016 respectively?

(b) Issue No.2: Whether the MOEFCC Notification dated 7.12.2015 requiring the thermal generating stations to implement the revised environmental norms amounts to Change in Law in terms of the provisions of the 2014 Tariff Regulations?

(c) Issue No.3: Whether the Commission can issue directions providing for broad guidelines for implementation of the ECS and incremental expenditure on auxiliary consumption and O&M expenses on ECS and other facilities?

**Issue No.1: Whether the prayer for in-principle approval in the petition is maintainable in the absence of such provisions in the 2014 Tariff Regulations and in the light of the orders of the Commission dated 14.10.2009 and dated 20.3.2017 in Petition No. 153 of 2009 and Petition No.72/MP/2016 respectively?**

24. MOEFCC, Gol vide Notification dated 7.12.2015 has notified the Environment (Protection) Amendment Rules, 2015 amending the Environment (Protection) Act, 1986. Through the amendment, the existing/applicable environmental norms for all existing as well as future Thermal Power Projects as under:



- (i) All Thermal power Plants with once through cooling must install Cooling Tower and achieve specific water consumption upto maximum of  $3.5\text{m}^3/\text{MW}/\text{hr}$ .
- (ii) All existing Cooling Tower based thermal power plants commissioned before 31.12.2003 and between 1.1.2004 and 31.3.2016, to reduce specific water consumption upto maximum of  $3.5\text{m}^3/\text{MW}/\text{hr}$ .
- (iii) Emission limits for Particulate Matter is  $50\text{ mg}/\text{Nm}^3$  for generating stations commissioned between 1.1.2004 and 31.12.2016 and  $100\text{ mg}/\text{Nm}^3$  for generating stations commissioned before 31.12.2003.
- (iv) Oxides of Nitrogen emission limited to  $300\text{ mg}/\text{Nm}^3$  for generating stations commissioned between 1.1.2004 and 31.12.2016 and  $600\text{ mg}/\text{Nm}^3$  for generating stations commissioned before 31.12.2003.
- (v) Sulphur Dioxide emission limited to  $600\text{ mg}/\text{Nm}^3$  for units smaller than 500 MW and  $200\text{ mg}/\text{Nm}^3$  for units bigger than 500 MW.
- (vi) Mercury emission limited to  $0.03\text{ mg}/\text{Nm}^3$ .

25. The Petitioner has submitted that the MOEFCC Notification is a 'Change in law' event and the Petitioner is required to comply with the revised norms prescribed by the MOEFCC Notification and install Emission Control System (ECS) and carry out major capital works/modifications for it to be able to operate the projects and supply power to the beneficiaries. The Petitioner has further submitted that it is obliged to incur substantial one-time capital expenditure apart from recurring operational expenditure and additional/increase in costs due to change in operational parameters. In this background, the Petitioner has sought in-principle approval of the capital cost of ₹0.86 crore/MW for Singaruli STPS and ₹0.78 crore/MW for Sipat STPS Stage-I towards installation of ECS and other associated facilities under Section 79 of the Electricity Act, 2003 read with Regulations 14(3)(ii) and 8(3) of the 2014 Tariff Regulations.



26. Some of the Respondents like UPPCL, TPDDL, MPPMCL, GRIDCO and CSPDCL have objected to the clubbing of two Projects in the Petition and have submitted that generating stations have different characteristics such as age, capacity, construction, changes required to retrofit ECS and would require different capital and O&M expenses to meet the norms under MOEFCC Notification and the beneficiaries are also different. Accordingly, these Respondents have submitted that the present Petition in respect of two generating stations is not maintainable and the Petitioner may be directed to submit station-wise Petitions in respect of reliefs claimed. In response, the Petitioner has clarified that though the MOEFCC Notification will impact all the projects of the Petitioner, the present Petition covers the indicative expenditure to be incurred by the two generating stations (Singrauli & Sipat-I) as a sample case for appreciation of the Commission. The Petitioner has further submitted that the approval of the cost to be incurred qua the compliance of MOEFCC Notification will facilitate the Petitioner to take investment approval of these expenditure for all other generating stations of the Petitioner. Accordingly, the Petitioner has submitted that the present Petition is maintainable.

27. The submissions of the parties have been examined and the documents on record have been perused. The Notification dated 7.12.2015 has been issued by MOEFCC in exercise of the powers conferred on it by Sections 6 and 25 of the Environment Protection Act, 1986 (29 of 1986). Under the amended norms prescribed by the MOEFCC Notification for compliance, all Thermal Power Plants have been categorised as (i) Units installed before 31.12.2003 (ii) Units installed between 1.1.2004 and 31.12.2016 and (iii) Units which are commissioned after January, 2017. While Singrauli STPS of the Petitioner falls under the first category,



Sipat STPS-I falls under the second category. In the present Petition, the Petitioner has sought approval for two projects, namely Singrauli and Sipat which represent two different categories under the MOEFCC Notification. Further, though a single Petition has been filed, the Petitioner has submitted separate indicative capital cost for installation of ECS for Singrauli and Sipat and other associated expenditure. All details with regard to implementation of ECS for Singrauli and Sipat have been provided though in a single petition instead of filing two separate petitions. Accordingly, we are of the view that the objection of the respondents with regard to maintainability of the petition on this ground cannot be sustained.

28. Some of the Respondents have stated that it was not possible for them to examine the validity of the claim of the Petitioner since the exact impact on tariff has not been provided by the Petitioner. It has also been stated that the Petitioner should have approached the Commission after incurring the expenditure as per prudent commercial practices, whether it is a case of change in law or not. It is stated that the Petitioner should approach the Commission once the expenditure has been incurred. We do not agree with the contention of the Respondents in this regard, since it will not be possible for the Petitioner to incur expenditure without regulatory certainty in this regard, in view the quantum involved.

29. Another other ground for challenging the maintainability of this Petition by the Respondents is that the 2014 Tariff Regulations do not provide for grant of in-principle approval of the capital expenditure or any other such associated reliefs claimed by the Petitioner. The Respondents have relied on the order dated 14.10.2009 in Petition No.153 of 2009 and order dated 20.3.2017 in Petition No.



72/MP/2016 issued by this Commission rejecting the prayers for in principle approval of capital cost.

30. We agree that there is no provision either in the 2009 Tariff Regulations or in 2014 Tariff Regulations for in principle approval of the capital cost. This is also clear from the decisions of the Commission in Petition No.153 of 2009 and Petition No. 72/MP/2016 which were rendered after considering the absence of provisions for in-principle approval in the 2009 Tariff Regulations or in 2014 Tariff Regulations. Let us consider these.

31. Petition No.153 of 2009 was filed by Karcham Wangtoo Hydro Corporation Limited (KWHCL) seeking in principle approval for its 1000 MW Karcham Wangtoo Hydro Electric Project in Himachal Pradesh. In that case, CEA had accorded techno-economic clearance on 30.3.2003 under the Electricity (Supply) Act, 1948. As per the techno-economic clearance, the work on the project was to commence in January, 2004 and to be completed by December, 2009. The techno-economic clearance further contained a condition that in case of time gap between its issue and actual start of work for the generating station by the generating company was more than three years, a fresh techno-economic clearance from CEA was to be obtained before start of work. The petitioner by its letter dated 5.3.2005, made a fresh request for extension of time till 31.3.2006 for submission of the Firm Financial Package. CEA vide its letter dated 18.3.2008 conveyed that after the Act came into force, fixation of tariff of the generating stations was vested in the Regulatory Commissions and, therefore, Firm Financial Package/ final completion cost was not required to be approved by CEA. KWHCL assigned the task to a consultancy firm regarding price increase in EPC contract and the consultant



submitted a report in which the estimated revised cost estimate was ₹7080.38 crore as against ₹5909.59 crore as per the techno-economic clearance of CEA. KWHCL approached the Commission for in principle approval by relaxing the provisions of Regulation 5 in exercise of power under Regulation 44 the 2009 regulations. The Commission in its order dated 14.10.2009 held as under:

“15. The terms and conditions for determination of tariff for the period 1.4.2009 to 31.3.2014 have already been notified by the Commission by virtue of power under Section 61 of the Act. These regulations (the 2009 regulations) also do not provide for determination of in principle capital cost.

16. We may also have a look at the historical aspect of approval of capital cost. The Supply Act provided for preparation of a scheme, relating to establishment of the generating stations. The scheme was to be submitted to CEA for its concurrence. CEA while according its concurrence was to take into account the capital cost, apart from considering other relevant factors. The Parliament has omitted the provisions for techno-economic concurrence. Thus, the Parliament did not consider it appropriate to retain the provisions for techno-economic clearance, including approval of the project capital cost by CEA. The Commission in the tariff regulations applicable during the tariff period 2004-09 had made provisions for ‘in principle’ approval of the project capital cost for thermal power generating stations. There was no corresponding provision for hydro power generating stations. While framing the 2009 regulations, the Commission has done away the provisions for ‘in principle’ approval of the project capital cost applicable to thermal power generating stations, through a conscious decision. Under the circumstances, granting approval to the estimated completion cost for the generating station by relaxing the provisions of the tariff regulations through invoking Regulation 44 thereof may amount to restoring the repealed provision, through back door.”

32. From the above, it is clear that there was no provision for in-principle approval for hydro projects in the 2004 Tariff Regulations and no provision for in-principle approval for either thermal or hydro projects in the 2009 Tariff Regulations. In the absence of provision for in-principle approval in 2009 Tariff Regulations, the Commission did not consider the request of KWHCL for in principle approval of capital cost. It is, however, pertinent to mention that Regulation 7 of the 2009 Tariff Regulations contain a provision that “the capital coat for a project shall include the expenditure incurred or projected to be incurred.....upto the date of commercial operation of the project, as admitted by the Commission after



prudence check.” Therefore, KWHPL was required to incur the expenditure on the project and approach the Commission for approval of capital cost and tariff.

33. Petition No.72/MP/2016 was filed by Maithon Power Limited (MPL) under Regulation 13 (3) (ii) read with Regulation 3 (9) and 12 (2) of the 2014 Tariff Regulations seeking in-principle approval of the “Abstract Schemes” of capital expenditure in compliance with the Environment (Protection) Amendment Rules, 2015 issued by MoEFCC vide Notification dated 7.12.2015. The Commission in its order dated 20.3.2017 rejected the prayer of MPL for grant of in-principle approval as under:

*“10. Since, the 2014 Tariff Regulations do not provide for the grant of in-principle approval for the capital expenditure, the prayer of the petitioner for in-principle approval of the Abstract scheme of capital expenditure by relaxing the provisions of the tariff regulations through invoking Regulation 54 of 2014 Tariff Regulations is not maintainable. In our view, since, the implementation of new norms in the existing and under construction thermal generating stations would require modification of their existing system and installation of new systems such as Retro-fitting of additional fields in ESP/replacement of ESP, etc. to meet Suspended Particulate Matter norms, installation of FGD system to control SOx and Selective Catalytic Reduction (SCR) systems for DeNox, the petitioner is directed to approach the Central Electricity Authority to decide specific optimum technology, associated cost and major issues to be faced in installation of different system like SCR, etc. The petitioner is also directed to take up the matter with the Ministry of Environment and Forest for phasing of the implementation of the different environmental measures. Accordingly, the petitioner is granted liberty to file appropriate petition at an appropriate stage based on approval of CEA and direction of MoEF which shall be dealt with in accordance with law.”*

34. Since the 2014 Tariff Regulations specified by the Commission do not contain any provision for in-principle approval, the Commission by order dated 20.3.2017 had rejected the prayer of MPL for grant of in-principle approval of the expenditure towards ‘Abstract schemes’ for compliance with the MOEFCC Notification dated 7.12.2015. The Commission in the said order directed MPL to approach Central Electricity Authority with regard to the specific optimum technology, associated cost and major issues to be faced in installation of revised



environmental norms and to approach MOEFCC for phasing of the implementation of the different environmental measures. The Commission also directed the Petitioner therein to file application at the appropriate stage based on the approval of CEA and directions of MoEFCC. In other words, the Commission had granted liberty to MPL to approach the Commission once the cost factors including technology and implementation schedules are decided in consultation with CEA and MOEFCC respectively.

35. It is pertinent to mention that under the 2009 Tariff Regulations as well as 2014 Tariff Regulations, there are provisions for approval of the capital expenditure and additional capital expenditure “projected to be incurred”. Karcham Wangtoo Hydro Corporation Limited approached the Commission for determination of tariff (under the name of Jaiprakash Power Venture Limited/ Himachal Baspa Power Company Limited) for determination of tariff after commercial operation of the project and the Commission approved its tariff for the period 2014-19 vide order dated 30.3.2017 in Petition No. 434/GT/2014. In case of MPL, it was required to approach the Commission after consultation with CEA and MOEFCC for approval of the projected capital expenditure for implementation of the environmental norms as notified by MOEFCC. Thus, though the Commission did not accord in-principle approval for capital cost in MPL case (in Petition No. 72/MP/2016), the Commission had granted liberty to MPL to approach the Commission after consultation with CEA and MOEFCC.

36. In the light of the above discussion, we decide that in the absence of provisions for in-principle approval of capital cost in the 2014 Tariff Regulations, the first prayer of the Petitioner for grant of in principle approval of the capital





cost and other expenditure for implementation of ECS cannot be granted. However, liberty is granted to the Petitioner to approach the Commission after consultation with CEA in project specific cases with regard to adoption of specific technology and finalising the cost, as stated in paragraph 48(i) of this order.

**Issue No.2: Whether the MOEFCC Notification dated 7.12.2015 requiring the thermal generating stations to implement the revised environmental norms amounts to Change in Law in terms of the provisions of the 2014 Tariff Regulations?**

37. The Petitioner has claimed that the Notification of MOEFCC dated 7.12.2015 is covered under Change in Law provisions of 2014 Tariff Regulations. Change in Law has been defined in Regulation 3(9) of the 2014 Tariff Regulations as under:

*“3(9) “Change In Law” means occurrence of any of the following events:*

*(a) enactment, bringing into effect or promulgation of any new Indian law; or*

*(b) adoption, amendment, modification, repeal or re-enactment of any existing Indian law; or*

*(c) change in interpretation or application of any Indian law by a competent court, Tribunal or Indian Governmental Instrumentality which is the final authority under law for such interpretation or application; or*

*(d) change by any competent statutory authority in any condition or covenant of any consent or clearances or approval or licence available or obtained for the project; or*

*(e) coming into force or change in any bilateral or multilateral agreement/treaty between the Government of India and any other Sovereign Government having implication for the generating station or the transmission system regulated under these Regulations.”*

38. As per the definition, “adoption, amendment, modification, repeal or re-enactment of any existing Indian Law” is covered under Change in Law. The Environment (Protection) Rules, 1986 have been notified by the Central Government in exercise of the power vested under sections 6 and 25 of the Environment Protection Act, 1986. Rule 3 of the Environment (Protection) Rules provides for Standards for emissions or discharge of environmental pollutants. Through the Environment (Protection) Amendment Rules, 2015 notified by the



Central Government vide Notification dated 7.12.2015, the standards of emission of environmental pollutants to be followed by the thermal power plants have been revised. Since the Central Government has revised the standards of emissions of environmental pollutants in exercise of its power under the Environment Protection Act, 1986, the said notification is covered under Change in Law in terms of Regulation 3(9)(ii) of the 2014 Tariff Regulations. The revised standards are mandatory in nature and are to be complied with within a stipulated timeframe.

39. Ministry of Power, GOI, in exercise of its powers conferred under Section 107 of the 2003 Act has issued directions to the Commission vide letter dated 30.5.2018. The said letter is extracted hereunder:

No.23/22/2018- R & R  
Government of India  
Ministry of Power

Shram Shakti Bhawan, Rafi Marg  
New Delhi, 30<sup>th</sup> May, 2018

To  
The Chairperson,  
Central Electricity Regulatory Commission  
Chanderlok Building,  
Janpath, New Delhi-110001

**Subject:** Mechanism of implementation of new Environmental norms for thermal power plants (TPP) supplying power to distribution licensees under concluded long term and medium term power purchase agreement (PPA)

Sir,

Ministry of Environment, Forest and Climate Change (MoEFCC) has notified the Environment (Protection) Amendment Rules, 2015 on 7<sup>th</sup> December, 2015 thereby introducing revised emission standards for Thermal Power Plants (TPPs). The revised emission standards are applicable to existing as well as upcoming TPPs. To meet the revised emission standards, the TPPs would have to install or upgrade various emission control systems like Flue-gas desulfurization (FGD) system, Electro-Static Precipitators (ESP) system etc.

2. As per implementation plan prepared by Central Electricity Authority (CEA), the existing TPPs are required to comply with the new emission standards by the year 2022.

3. Implementation of revised emission standards would face challenges relating to stringent timelines, availability of suppliers and technology, shut down for longer periods, and revenue loss during shutdown. It would also have significant implications on the tariff agreed under the long term and medium term power



purchase agreement (PPA) due to additional infrastructure and operational cost on account of large scale installations, renovations & retrofitting of existing plant and machinery to meet revised emission norms.

4. In view of the nature of cost involved in implementation of revised standards of emission and the provisions of Power Purchase Agreement, there is a need to develop the appropriate regulatory framework specifying the mechanism or enabling guidelines for providing regulatory certainty to the TPPs about recovery of such additional costs through tariff. It is important to ensure implementation of the revised standards of emission for TPPs for controlling pollution level in the larger public interest.

5. After considering all aspects and with due regard to the need for safeguards against environmental hazards, and accordingly to ensure timely implementation of new environment norms, the Central government has decided that-

5.1 The MOEFCC Notification requiring compliance of Environment (Protection) Amendment Rules, 2015 dated 7<sup>th</sup> December, 2015 is of the nature of Change in law event except in following cases:

(a) Power purchase Agreements of such TPPs whose tariff is determined under section 63 of the Electricity Act 2003 having bid deadline on or after 7<sup>th</sup> December, 2015; or

(b) TPPs where such requirement of pollutions control system was mandated under the environment clearance of the plant or envisaged otherwise before the notification of amendment rules;

5.2 The additional cost implication due to installation or up-gradation of various emission control systems and its operational cost to meet the new environment norms, after award of bid or signing of PPA as the case may be, shall be considered for being made pass through in tariff by Commission in accordance with the law.

5.3 The respective TPPs may approach the Appropriate Commission for approval of additional capital expenditure and compensation for additional cost on account of this Change in law event in respect of the Power Purchase Agreement entered under section 62 or section 63 of the Electricity act 2003.

5.4 For the TPPs that are under the purview of the Central Commission, the Commission shall develop appropriate regulatory mechanism to address the impact on tariff, and certainty in cost recovery on account of additional capital and operational cost, under concluded long term and medium term PPAs for this purpose.

6. The Central Government, in exercise of the power conferred under section 107 of the Electricity Act 2003 issues directions to the Central Electricity Regulatory Commission to implement the above decision of the Government. This direction is being issued to facilitate the smooth implementation of revised emission standards of the Environment (Protection) Amendment Rules, 2015 dated 7<sup>th</sup> December, 2015 for Thermal Power Plants in the larger public interest.

7. This issues with the approval of Minister of state (IC) for Power and NRE.

Yours faithfully

Ghanshyam Prasad  
Chief Engineer



40. Further, MoP has issued directions under section 107 of the 2003 Act to facilitate the smooth implementation of the revised emission norms under the MOEFCC Notification for thermal power plants in the larger public interest. Section 107 of the 2003 Act provides as under:

*“107 (1) In discharge its functions, the Central Commission shall be guided by such directions as matter of policy involving public interest as the Central Government may give to in writing.”*

41. Therefore, the Commission is required to be guided by the policy directions issued by the Central Government under section 107 of the 2003 Act in discharge of its functions.

42. Para 5.4 of the Directions issued by MoP under Section 107 of the 2003 Act provides as under:

*“5.4 For the TPPs that are under the purview of the Central Commission, the Commission shall develop appropriate regulatory mechanism to address the impact on tariff, and certainty in cost recovery on account of additional capital and operational cost, under concluded long term and medium term PPAs for this purpose.”*

43. MoP in its directions under section 107 of the 2003 Act has recognised that the MOEFCC Notification requiring compliance of Environment (Protection) Amendment Rules, 2015 dated 7<sup>th</sup> December, 2015 is of the nature of Change in law event with two exceptions namely, where Power Purchase Agreements of such TPPs whose tariff is determined under section 63 of the Electricity Act 2003 having bid deadline on or after 7th December, 2015; or where such requirement of pollutions control system was mandated under the environment clearance of the plant or envisaged otherwise before the notification of amendment rules.

44. In our view, the MOEFCC Notification dated 7.12.2015 requiring the thermal generating stations to implement the revised environmental norms amounts to



‘Change in Law’ in accordance with the 2014 Tariff Regulations as well as the Policy directions issued by the MoP under section 107 of the Act.

**Issue No.3: Whether the Commission should issue directions providing for broad guidelines for implementation of the ECS and incremental expenditure on auxiliary consumption and O&M expenses on ECS and other facilities?**

45. We have decided that revised standards of emissions of environmental pollutants notified vide Notification dated 7.12.2015 is covered under ‘Change in law’ in terms of Regulation 3(9)(ii) of the 2014 Tariff Regulations. The relief under Change in Law is provided under additional capital expenditure in terms of Regulation 14 of the 2014 Tariff Regulations. Relevant provisions of Regulation 14 are extracted as under:

***“14. Additional Capitalisation and De-Capitalisation***

*(1) The capital expenditure, in respect of new project or an existing project incurred or projected to be incurred on the following counts within the original scope of work, after the date of commercial operation and upto the cut-off date, may be admitted by the Commission, subject to prudence check:*

Xxxxx

*(v) Change in law or compliance of any existing law.*

*(2) The capital expenditure, incurred or projected to be incurred in respect of the new project on the following counts after the cut-off date, may be admitted by the Commission, subject to prudence check:*

*(ii) Change in law or compliance of any existing law.*

*(3) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date, may be admitted by the Commission, subject to prudence check:*

*(ii) Change in law or compliance of any existing law.”*

46. Existing generating project has been defined as a ‘project’ which has been declared under commercial operation on a date prior to 1.4.2014 and new project has been defined as the project achieving COD or anticipated to be achieving COD on or after 1.4.2014. In all these situations, additional capital expenditure on



“change in law or compliance with any existing law” is allowed. Therefore, additional capital expenditure on implementation of the ECS in terms of the Notification dated 7.12.2015 shall be admissible after due prudence check, under Regulation 14 of the 2014 Tariff Regulations.

47. The compliance of the revised norms specified under the MOEFCC Notification by these generating stations would require identification of suitable technology depending upon location of plant and existing level of emission from such plant. Moreover, the scope of work would also differ from plant to plant, depending upon the type of technology to be adopted. The Petitioner in its prayers (b) to (h) has also prayed for the following:

- (i) Incremental Auxiliary Consumption for computation of tariff post commissioning of ECS.
- (ii) Incremental O&M cost for installation of ECS and other associated facilities.
- (iii) Shutdown period required for installation and commissioning of ECS at the projects to be allowed as deemed availability for payment of capacity charges.
- (iv) Expenditure on water cost required for operation of ECS and other associated facilities
- (v) Allow procurement cost of limestone for operation of ECS at actuals.
- (vi) Expenditure on procurement cost of lime stones and other reagents like urea and ammonia etc.
- (vii) Permission to approach the Commission for remaining ECS.

48. Therefore, a mechanism needs to be devised for addressing the issues like identification of suitable technology for each plant for implementation of ECS, its impact on operational parameters and on tariff, and the recovery of additional



capital and operational cost. The Commission in this regard directs the CEA to prepare guidelines specifying;

(a) Suitable technology with model specification for each plant, with regard to implementation of new norms;

(b) Operational parameters of the thermal power plants such as auxiliary consumption, O&M expenses, Station Heat Rate etc., consequent to the implementation of ECS.

(c) Norms of consumption of water, limestone, ammonia etc., required for operation of the plants after implementation of ECS.

(d) Any other detailed technical inputs.

49. Based on the guidelines and operational parameters decided by CEA, the Commission shall undertake prudence check and grant the tariff for the capital and operational expenditure on ECS in respect of the generating stations regulated by the Commission. The Commission may, if required, specify detailed guidelines in this regard.

50. The treatment of shut down period required for installation and commissioning of ECS at the projects of the Petitioner shall be decided by the Commission consequent upon preparation of such schedule by CEA. The detailed guidelines referred to in para 49 above will address this aspect also. The Petitioner may thereafter approach the Commission with an appropriate Petition in this regard.

51. Petition No. 98/MP/2017 is disposed of in terms of the above.

**Sd/-**  
**(Dr. M. K. Iyer)**  
**Member**

**Sd/-**  
**(A. S. Bakshi)**  
**Member**

**Sd/-**  
**(A. K. Singhal)**  
**Member**

**Sd/-**  
**(P. K. Pujari)**  
**Chairperson**

