



एन टी पी सी लिमिटेड

(भारत सरकार का उद्यम)

NTPC Limited

(A Govt. of India Enterprise)

केन्द्रीय कार्यालय/Corporate Centre

Ref: 01:CD:732:

Date : 05th May'2014

To
The Bench Officer
Central Electricity Regulatory Commission
3rd & 4th Floor, Chanderlok Building
36, Janpath, New Delhi-110001

Sub: Submissions of information in Petition No. 121/MP/2011

Sir,

This is with reference to the CERC letter dated 03.04.2014 in Petition No. 121/MP/2011 filed by NTPC in the matter of Petition under Regulation 44 of the CERC (Terms & Conditions of Tariff) Regulations, 2009 read with Regulation 111 and other related Regulations of the CERC (Conduct of Business) Regulations 1999 for recovery of additional cost incurred due to abnormal increase in water charges at NTPC Stations.

Please find enclosed NTPC's submission in original along with 9 (Nine) copies. Copy of the submission has been forwarded to the all respondents and the speed post receipt in support of the same is enclosed.

Kindly acknowledge the receipt of the same.

Yours faithfully,

(Ajay Dua)
AGM (Commercial)

Encl: As above

	के. वि. वि. आयोग
दिनांक	5/5/14
प्राप्त हुआ	
	हस्ताक्षर

BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No.121/MP/2011

IN THE MATTER OF:

Petition under Regulation 44 of the CERC (Terms and Conditions of Tariff) Regulations, 2009 read with Regulation 111 and other related Regulations of CERC (Conduct of Business) Regulations, 1999 for recovery of additional cost incurred due to abnormal increased in water charges at NTPC stations.

AND

IN THE MATTER OF:

Submission of information as directed by Hon'ble Commission vide its letter dated 03.04.2014

AND

IN THE MATTER OF:

Petitioner: : NTPC Ltd.
NTPC Bhawan
Core-7, Scope Complex
7, Institutional Area, Lodhi Road
New Delhi-110 003

Respondents: 1. UPPCL
Shakti Bhawan Extn., 10th Floor
14, Ashok Marg
Lucknow - 226001 (U.P)
And Others

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Lucknow - 226001 (U.P.)
And Others

AFFIDAVIT IN SUPPORT

I, Ajay Dua, son of Des Raj Dua aged about 47 years, residing at C-401, Ishwar Apartments Plot No-04, Sector-12, Dwarka, New Delhi, do solemnly affirm and state as under:

1. That I am the AGM (Commercial) in Petitioner Corporation NTPC Ltd. and am well conversant with the facts of the case and am competent to swear the present affidavit.
2. That I have read the contents of the accompanying submission as directed by Hon'ble Commission vide its letter dated 03.04.2014 and have understood the contents of the same.
3. That the contents of the accompanying submission being filed by NTPC are based on information available with the petitioner in the normal course of business and believed by the deponent to be true.



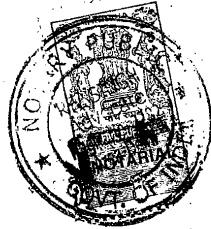
AJAY DUA
अजय दुआ / AJAY DUA
अपर महा प्रबंधक (व्यापार)
Addl. General Manager (Commercial)
एनटीपीसी लिमिटेड / NTPC Limited
कोर-8, षट्पथ तल / Core-8, 4th Floor
7, स्कोप कॉम्प्लेक्स / 7, SCOPE Complex
लोधी रोड, नई दिल्ली-3 / Lodhi Road, New Delhi-3

Verification:

I, the deponent above named, do hereby verify that the contents of the above affidavit are true to the best of my knowledge, no part of it is false and nothing material has been concealed there from.

Verified at New Delhi on this 30th day of April 2014.

Deponent
अजय दुआ / AJAY DUA
अवर महा प्रबंधक (व्यापारिक)
Addl. General Manager (Commercial)
एनटीपीसी लिमिटेड / NTPC Limited
कोर-8, ब्लूटॉप तल / Core-8, 4th Floor
7, स्कोप कॉम्प्लेक्स / 7, SCOPE Complex
लोधी रोड, नई दिल्ली-3 / Lodhi Road, New Delhi-3



ATTESTED
Notary Public Delhi
30 APR 2014

BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No.121/MP/2011

IN THE MATTER OF:

Petition under Regulation 44 of the CERC (Terms and Conditions of Tariff) Regulations, 2009 read with Regulation 111 and other related Regulations of CERC (Conduct of Business) Regulations, 1999 for recovery of additional cost incurred due to abnormal increased in water charges at NTPC stations.

AND

IN THE MATTER OF:

Submission of information as directed by Hon'ble Commission vide its letter dated 03.04.2014

AND

IN THE MATTER OF:

Petitioner:	:	NTPC Ltd. NTPC Bhawan Core-7, Scope Complex 7, Institutional Area, Lodhi Road New Delhi-110 003
Respondents:	1.	UPPCL Shakti Bhawan Extn., 10 th Floor 14, Ashok Marg Lucknow - 226001 (U.P) And Others

Most respectfully showeth:

As directed by the Hon'ble Commission vide its letter dated 03.04.2014, the point wise reply is submitted as under:

- A In respect of S. No. 2 a), it is submitted that generally the basis for arriving at requirement of water for different purpose to work out the designed capacity of consumptive water is as follows:
- A 1 Cooling Tower Makeup - The cooling tower makeup is taken as a sum of the *Evaporation Loss (E)* and *Drift Loss (D)* from the Cooling Towers and the *Blow down (B)* taken from the CW System to maintained for the required *Cycles of*

Concentration (C) in the CW System. Following are the governing parameters for working out various losses from the CW Cycle:

- **Evaporation Loss (E)** = 1.7% of the total CW Flow per 10°C rise in the Cold Water Temperature.
- **Drift Loss (D)** = 0.05% of the total CW Flow.
- **Blow Down (B)** = $\{E-D(C-1)\}/(C-1)$

A 2 **DM Water Makeup** - considered as 1.5% of MCR of Steam Generator.

A 3 **Ash Disposal** - Water quantity requirements for ash disposal are based on the following ash collection rates while firing worst coal at boiler MCR condition:

- a. Bottom Ash - 25% of total ash
- b. Economiser Ash - 5% of total ash
- c. Air preheater Ash - 5% of total ash
- d. ESP Ash - 90% of total ash

Water requirement is designed considering 25% higher disposal of ash in each area to take care of variations in ash collection in different area.

The criteria for water requirement for ash disposal in the various designs of ash disposal is as under:

- **For lean slurry disposal of both bottom ash and fly ash as combined slurry:**

Average concentration of ash in slurry is considered as 20%. Ash handling system operates in a closed loop for disposal. Ash water from disposal area is re circulated to system. Make up for loss in disposal area is required and is considered as 30% of the water in the slurry pumped to disposal area.

- **For lean slurry disposal of bottom ash and economiser ash and high concentration slurry disposal of fly ash and air preheater ash:**

Ash handling system operates in a closed loop for disposal of bottom ash and economiser ash as lean slurry. Average concentration of ash in slurry is 20%. Ash water from disposal area is re circulated to system. Make up for loss in disposal area and is considered as 30% of the water in the slurry pumped to disposal area.

- For high concentration disposal of fly ash and air preheater ash: The water requirement is based on ash concentration of 55% in slurry. Makeup for all the water in slurry is required.

In addition cooling /seal water for pumps, compressors etc. are also required.

- A 4 **Service Water System** - The requirement is around 200 m³/hr based on various uses in the plant.
- A 5 **Potable Water System** (separately for Plant & Colony)
- e. **Colony Potable Water** Requirement is worked out as following:
 - Potable Water Requirement of 0.38m³/day per person.
 - Each family consisting of five members.
 - b. **Plant Potable Water** requirement considered as around 20 m³/hr for 2x 500MW, 2x660MW & 2x800MW plant.
- A 6 **Coal Dust Suppression** - Water for coal dust suppression is considered on following basis:
- a. Stockyard: @ 500 lpm per sprinkler
 - b. Unloading area : @ 2 lpm per nozzle
 - c. Dust extraction system : make up @ 50 m³/hr
 - d. Conveyors (dry fog): 10 m³/hr
- A 7 **Clarifier Sludge** - 3 % of Clarifier inlet water.

It is submitted that in any case, total drawl of make-up water will not exceed the norm stipulated by CEA, which is 30 cusec for 1000MW.

- B In respect of S.No. 2 c), the reason for the abnormal increase in water charges in respect of Talcher, Vindhyachal, Sipat, Korba and TTPS is as follows:
- B1 Vindhyachal, Korba, Sipat and Talcher together contribute more than 35% of total capacity of NTPC.
- B2 Water charges applicable for these four stations were increased in the range of 94% in case of Korba & Sipat, 125% in case of Vindhyachal & 700% in case of Talcher by the respective state governments vide State notifications.
- B3 Apart from one time hike as mentioned above through the aforesaid

notifications, water charges are being increased to the tune of 10-15% every year. For example, as per Chattisgarh govt notification applicable to Korba & Sipat, apart from one time increase of 94%, water charges will be increased 15% for every year. Similarly as per M.P notification (Vindhyachal), year on year increase is more than 10%.

- B4 There has been substantial capacity increase at Korba, Sipat and Vindhyachal station. There has been addition of 500 MW at Korba, 1980 MW at Sipat & 1000 MW at Vindhyachal Station. Water charges have proportionately increased with increase in capacity.

Continued on page 7

C. In respect of S.No. 2 (b), 2 (d), 2 (e) & 2 (f), Station wise details are as follows:

1. Korba:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (M ³)	Rate (Rs/M ³)	Total Water Charges (Rs Lac)
2009-10	74871215	3.60	2051
2010-11	84555401	3.60/7.00*	4265
2011-12	84144589	7.00/8.05	6507
2012-13	81789402	8.05/9.26	7804

• Charges are being paid corresponding to 90% of allocated quantity.

As per WRD order dated 31.05.2010, Rate was revised from Rs 3.6/M³ to Rs 7.0/M³ from May 2010 onwards with a note that rate will be raised automatically 15% every year in May.

* In 2010-11, 11.86 Cr expenditure pertaining to stage-III construction was transferred to EDC prior to COD.

* Rs 2.51 Cr pertaining to 2011-12 was paid in 2012-13 due to change in methodology for calculation of water charges.

* Quantity consumed includes water for Balco plant for which Balco has paid the corresponding amount. Balance amount has been paid by NTPC and is reflected in fourth column above.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

- I) Reduction of water in case of dry fly ash evacuation: approx 200 m³ /Hr considering two passes continuously in dry evacuation system i.e comes to 1.75 MCM/Year
- II) Recycling of Effluent discharge approx 150 m³ /Hr i.e comes to 1.314 MCM/Year

2-e) Measures taken for reducing consumptive water than the designed value

- I) Ash water re-circulating pumps: with the help of these pumps ash water being re-circulated and used as HP/LP ash water and ash slurry line flushing water in the station. Quantity: Avg. 2400 m³ /Hr to Max. 4800 m³ /Hr during monsoon.
- II) Re-circulating the Stg-II compressor cooling water: quantity-300 m³ /Hr

2-f) Linkage of water as per the agreement

The stage wise linkage of water is as follows (Total being 110 MCM per year)

- For stage-I&II-62 MCM/year
- For stage-III- 30 MCM/year
- For BCPP- 18 MCM/year

As per the Notification, station is paying water charges for 90% of the allocated quantity.

2. Talcher STPS:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Allotted (Cusec)	Quantity Consumed (Cusec)	Rate (Rs/M ³)	Total Water Charges (Rs Lac)
2009-10	75	79.63	Rs 250/1 Lac gallon	373
2010-11	80	70.65	Rs 250/1 Lac gallon/Rs 4.50/cu. M	1853
2011-12	85	75.47	4.50 /Cu M	3425
2012-13	120	80.32	4.50/Cu M	7231

- Up to Feb-2010, water charges were paid on the basis of actual consumption as per the flow meter and thereafter based on allocated quantity.
- Rates were revised vide notification dated 01.10.2010.
- Rs 4.50/Cu. M rate was revised to Rs 5.60/Cu. M through govt. notification dated 01.10.2010 and arrear of Rs 23.087 Cr was paid in 2012-13 on account of revision of water charges rate.
- Rs 2.5 Cr liability was also paid in 2010-11 on account of water charges.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

i) The quantity of recycled water is given below:

Year	Ash Dyke (Lac M ³)	Effluent Treatment Plant (Lac M ³)	Coal Settling Pit (Lac M ³)
2009-10	298.88	28.42	23.5
2010-11	320.70	31.99	21.55
2011-12	195.50	43.09	30.29
2012-13	182.56	29.12	46.69

2-e) Measures taken for reducing consumptive water than the designed value

- Water consumption is optimized through recycle of decanted water from the ash dyke, Effluent treatment plant and coal settling pit.
- This decanted water is utilized for ash disposal system thus reducing the water requirement for ash disposal.

2-f) Linkage of water as per the agreement

At present, as per Water Agreement, water allocation is 120 cusec.

3. Vindhyachal:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (M ³)	Rate (Rs/M ³)	Total Water Charges (Rs Lac)
2009-10	97848876	2.00/4.00	2894
2010-11	111203373	4.00/4.50	9199
2011-12	91885733	4.50/5.00	6709
2012-13	95415663	5.00/5.50	13693

*Payment is on the basis of allocated quantity.

- Liabilities pertaining to prior period amounting Rs 32.3 Cr and Rs 62.8 Cr was paid in 2010-11 and in 2012-13 respectively. The amount paid now for the period prior to 2009 have not gone in the base O&M expenses considered for working out the norms for 2009-14 period and thereafter not recovered. Accordingly, this may be considered for reimbursement.
 - Vide notification dated 21.04.2010, the rate was revised from Rs 2 to Rs 4/M³. Thereafter rate as Rs 4.50/ M³ from 01.01.2011, Rs 5.0/ M³ from 01.01.2012, Rs 5.5/ M³ from 01.01.2013.
- * Rate revision was effective from 1st Jan onwards for respective year.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

- Dry Ash System is running in stage-II & III for 10 hr each per day. Water consumption saved during the process is 300 m³ /Hr of dry ash running.
- Stage-III-Effluent discharge is utilized in service water. Water recycled 300 m³ /Hr

2-e) Measures taken for reducing consumptive water than the designed value

- Maintaining proper HP Jetting in Stage-I units
- Periodic replacement of nozzles in flushing apparatus thus reducing LP water consumption
- Ensuring proper maintenance and replacement of knife gate valves at C/Gs outlet to avoid passing of bottom ash water
- Flow optimization in wetting head of wet fly ash handling system

2-f) Linkage of water as per the agreement

As per the agreement with MP state govt., water linkage is 180 Cusec.

4. Sipat:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (M ³)	Rate (Rs/M ³)	Total Water Charges (Rs Lac)
2009-10	38120000	3.6	1359
2010-11	35299190	3.6/7.0	2418
2011-12	66400590	7.0/8.05	3833
2012-13	71826570	8.05/9.26	9188

- Water charges were paid for 90% of MOU quantity (120 MCM) from Dec'2009 onwards.
- As per Water Resource Department order dated 31.05.2010, Rate was revised from Rs 3.6/M³ to Rs 7.0/M³ from May 2010 onwards with a note that rate will be raised automatically 15% every year in May.
- Till Nov'2009, water charges were paid based on actual consumption.
- Rate change was effective from the month of May for respective years.
- Rs 8.64Cr, Rs 48.36 Cr, Rs 47.66 Cr and Rs 10.20 Cr expenditure pertaining to Sipat-I construction was transferred to EDC prior to COD for the period 2009-10, 2010-11, 2011-12 & 2012-13 respectively.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

- i) Dry ash utilization and water saved (In Cu M) by dry ash utilization is as follows:

Year	Dry Ash Utilization (MT)	Water saved (Cu M)
2010-11	232260	1625820
2011-12	321863	2253041
2012-13	552397	3866779

- Dry ash system was commissioned in 2010-11.

2-e) Measures taken for reducing consumptive water than the designed value

- Ash Return water use increased and fully caters to ash handling plant requirement.
- Dry mode operation in ash handling plant increased & wet mode operation minimized.
- In wet mode, operation optimized (3 cycles per pass per shift)
- Bottom ash over flow transfer p/ps commissioned & taken in service

2-f) Linkage of water as per the agreement

As per the agreement with Chhattisgarh state govt., water linkage is 120 Million Cubic Meter.

5. Simhadri:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity of Sweet Water (KI)	Rate (Rs/KI)	Total Water Charges (Rs Lac)
2009-10	8619520	8.26	713
2010-11	5882776	8.54	495
2011-12	7978636	8.82	697
2012-13	8793411	11.80	1028

* Rs 7 Lacs in 2010-11 & 2011-12 and 10 Lacs in 2012-13 were on account of construction activities hence not included in revenue expenditure

* Rates for 2012-13 were increased vide letter dated 01.02.2013.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Sea water is being used for Ash handling purposes.

2-e) Measures taken for reducing consumptive water than the designed value

- I) Water balance audit and implementation of audit recommendations.
- II) Regular monitoring of specific water consumption & optimization of usage through performance improvement project.

2-f) Linkage of water as per the agreement

BWSA (Bulk water supply agreement) between NTPC-Simhadri, VIWSCO & APIIC was executed on 27.09.2006 for the supply of sweet water to NTPC Simhadri up to 32 Million Litres per day to meet water requirement of the station.

6. Ramagundam:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity of Industrial Water (SRSP) (MCF/Year)	Quantity of Industrial Water (Yellampally) (MCF/Year)	Rate of Industrial Water (Rs/MCF)	Total Water Charges (Rs Lac)
2009-10	3008.45	0	28029.75	850
2010-11	4177	0	28029.75	1182
2011-12	3384	0	28029.75	948
2012-13	1728.61	1519.27	28029.75	1392*

* Provision of 413 Lacs payment for Yellampally reservoir was kept in the books for payment as the final amount is not yet decided.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

- I) Pumping of water started from ash dyke by using ash discharge line of Unit-7. Additional 600 to 800 m³ /Hr water recycled
- II) Stage-I fly ash discharged into Unit-7 sump as make up to minimize Ash water ratio.

2-e) Measures taken for reducing consumptive water than the designed value

- I) Decant return water piping was cleaned completely. Return water flow improved by 1000 m³ /Hr.
- II) Full fledged plant effluent treatment system implemented by renovation of ETP.
- III) All plant drains are connected to ETP for maximize water reuse.

2-f) Linkage of water as per the agreement

Agreed quantity from SRSP is 6.5 Thousand Million Cubic Feet and the same quantity is embarked from yellampally project.

7. TTPS:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (CuM)	Rate (Rs/M ³)	Total Water Charges (Rs Lac)
2009-10	11487458.3	Rs 250/1 Lac gallon	77
2010-11	13006888.4	Rs 250/1 Lac gallon/Rs 4.50/cu. M	365
2011-12	14526318.36	4.50	654
2012-13	14526318.36	4.50	654

- Up to Feb-2010, water charges were paid on the basis of actual consumption as per the flow meter and thereafter based on allocated quantity.
- Rates were revised vide notification dated 01.10.2010.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Effluent discharges are being recycled. 9 nos. of flow meters are being procured for installation at various locations in order to audit and reduce the water consumption in various auxiliaries.

2-e) Measures taken for reducing consumptive water than the designed value

- Utilization of plant drain water for de-ashing,
- Using Cooling Tower Blow down for ash water pond make up
- Use of STP water for horticulture purpose
- Ash Water Recirculation System to bring back decanted water from mines

Also, an ETP is planned for treatment of township drain water & its reuse for further reduction of water consumption.

2-f) Linkage of water as per the agreement

At present, as per Water Agreement, water allocation is 16.49 cusec.

8. Farakka:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (Cu M)	Rate (Rs/5000 Cu. Feet)	Total Water Charges (Rs Lac)
2009-10	63627684	5.5	25
2010-11	68824785	5.5	27
2011-12	63754020	5.5/162	153
2012-13	79098178	162	904

- Rates were revised w.e.f from 01.02.2012 vide letter dated: 16.02.2012 from CWC.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Under present condition, due to dry fly ash system, reduction in consumptive water is 450 M³/ hr.

2-e) Measures taken for reducing consumptive water than the designed value

- I) Recycling of Stage -II Compressor cooling water outlet to Wagon Tippler (Saving : 32 M³/ hr as per actual measurement)
- II) Fire water pipe over grounding and leakage attending, Compressor cooling water header over grounding resulted in stopping of one Fire water pump in Stage-1 (Saving: 275 M³/ hr as per rated flow)

2-f) Linkage of water as per the agreement

Presently water charges are being paid to Farakka Barrage Authority on the basis of our calculation of Pump capacity and Running hours.

9. Kahalgaon:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (Cu M)	Rate (Rs/5000 Cu. Feet)	Total Water Charges (Rs Lac)
2009-10	46770673	5.5	18
2010-11	54067932	5.5	21
2011-12	57888165	5.5/162	132
2012-13	61256667	162	695

- Rates were revised w.e.f from 01.02.2012 vide letter dated 16.02.2012 by Farakka Barrage Authority.
- Liabilities have been created in the accounts at the rate notified by Farakka Barrage Project Authority.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Ash water recirculation system is in service for Stage-I and Stage-II of KhSTPP.

2-e) Measures taken for reducing consumptive water than the designed value

Various water conservation measures are being taken to reduce consumption of water.

2-f) Linkage of water as per the agreement

Presently water charges are considered on the basis of our calculation of Pump capacity and Running hours.

10. Singrauli:

- a) Detailed working of water charges claimed indicating rate and actual water consumption is as under

Year	Quantity of CW (Cusec/MW)	Capacity (MW)	Total Quantity (Cusec)	Annual generation loss (Kwh/cusec)	Plant Availability Factor (%)	Annual generation loss (Kwh)	Rate (Paisa)	Total Water Charges* (Rs Lacs)
2009-10	0.037188	2000	74.3766	163509.544	86.48	10516145	244.25	771
2010-11	0.037188	2000	74.3766	163509.544	86.48	10516145	244.25	771
2011-12	0.037188	2000	74.3766	163509.544	86.48	10516145	244.25	771
2012-13	0.037188	2000	74.3766	163509.544	86.48	10516145	244.25	771

- Basis of the calculation of water charges is as per agreement between U.P Govt., NTPC and UPSEB. (copy enclosed)

- 2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Ash water recirculation system is under erection.

- 2-e) Measures taken for reducing consumptive water than the designed value

Various water conservation measures are being taken to reduce consumption of water like stopping of service water and clarifier water pump during winter. Fire water line re-commissioned from underground to over ground for arresting leakages.

- 2-f) Linkage of water as per the agreement

Water is drawn from Rihand Reservoir on the basis of MoU dated 30.06.1997.

16 A

Record note of discussions of the meeting taken by Hon'ble Minister of Energy, U.P. at Lucknow on 03.04.1999

FOLLOWING WERE PRESENT :

- 1. Sri Naresh Agarwal, Hon'ble Minister of Energy, U.P.
- 2. Sri Atul Chaturvedi, Secretary (Energy), Govt. of U.P.
- 3. Sri G.P. Singh, Chairman, UPSEB
- 4. Sri Rajendra Singh, CMD, NTPC

APPENDIX - A

PRINCIPLES FOR CONSUMPTIVE WATER CHARGES FOR FUTURE

Following principles for calculation of consumptive water charges for Rihand and Singrauli STPS to be adopted in future will be as under :-

- i) Water level may be taken on theoretical basis i.e. minimum of 830 feet and maximum of 880 feet.
- ii) T&D losses to be taken @ 12 % (Twelve percent).
- iii) Aux. Power consumption of UPSEB hydro stations viz Rihand and Obra will be taken as 0.5 %.
- iv) The energy loss will be calculated taking into consideration the actual availability of Rihand hydro station of UPSEB for the year 1998.
- v) Water charges will be payable from the date of synchronization of the units
- vi) The per Kilowatt hour charges to be applied will be the highest average annual rate during 1998 amongst Northern Region coal based stations of NTPC and will be applicable w.e.f. 1.1.1999 for next five years. This will be revised upwards by 10% after every five years.
- vii) To provide for generation loss on account of spillover of water, the charges for consumptive use will be worked out on the basis of 3.0 (Three) times of the above rate in place of 2 (Two) times as earlier proposed. No separate payments towards spillover water will be admissible
- viii) Water charges will be pass-through in the tariff
- ix) M.P. Govt have demanded water charges from NTPC for Vindhyaachal Super Thermal Power Station. It was agreed that water charges for Vindhyaachal Super Thermal Power Station of NTPC located in M.P. will not be billed to NTPC till the matter is settled between U.P. and M.P. Govt as to who would be beneficiary of water charges

(Signature)
 (ATUL CHATURVEDI)
 Secretary (Energy)
 Govt. of U.P.

(Signature)
 (RAJENDRA SINGH)
 CMD
 NTPC

(Signature)
 (G.P. SINGH)
 Chairman
 UPSEB

11. Rihand:

- a) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity of CW (Cusec/MW)	Capacity (MW)	Total Quantity (Cusec)	Annual generation loss (Kwh/cusec)	Plant Availability Factor (%)	Annual generation loss (Kwh)	Rate (Paisa)	Total Water Charges* (Rs Lacs)
2009-10	0.037188	2000	74.3766	163509.544	86.48	10516145	244.25	764
2010-11	0.037188	2000	74.3766	163509.544	86.48	10516145	244.25	765
2011-12	0.037188	2000	74.3766	163509.544	86.48	10516145	244.25	765
2012-13	0.037188	2000	74.3766	163509.544	86.48	10516145	244.25	836

- Same as singrauli

Around 6 Lacs/year that is recovered from power grid for consumption of water has not been included in water charges incurred.

- 2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Ash Water Recirculation system is in service.

- 2-e) Measures taken for reducing consumptive water than the designed value

- I) ETP (Effluent treatment plant) is available and in service.
- II) LWTP (Liquid waste treatment plant) is available and in service.
- III) Plant is running at almost zero discharge.

- 2-f) Linkage of water as per the agreement

Water is drawn from Rihand Reservoir on the basis of MoU dated 30.06.1997.

12. Dadri+ Dadri Gas:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (Cu Sec)	Water Charges @ L/Cusec	Rate (Rs per 1000 Cu. Feet)	Total Water Charges (Rs Lac)
2009-10	25.02	1.5	3.12	62
2010-11	38.85	1.5	3.12	89*
2011-12	45.24	1.5/6.0	3.12/12.48	347
2012-13	44.17	6.0	12.48	439

- Rate was changed w.e.f 15.07.2011.
- In 2010-11, 8.24 Lac expenditure pertaining to Dadri stage-II construction was transferred to EDC prior to COD.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

NTPC-Dadri coal station is having only dry fly ash extraction system and is having ash utilisation more than 100%. Since Dadri Coal not using wet ash system since inception, we don't require any water for transportation of fly ash.

2-e) Measures taken for reducing consumptive water than the designed value

- Water from effluent treatment plant is being recycled.
- Blow down from CW system in Stage-I is being used for Stage-II.
- Blow down from Stage-II is being used as service water for coal yard management and horticulture purpose.

2-f) Linkage of water as per the agreement

MOU dated 21.10.1998 is signed between NTPC and U.P State Irrigation department for 100 cusec of water.

13. Unchahar:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (Cu Sec)	Royalty of Water @ L/Cusec	Canal Maint. & Misc. Charges (Rs Lacs)	Total Water Charges (Rs Lac)
2009-10	49.22	1.5	38.62	112
2010-11	49.82	1.5	85.81	161
2011-12	49.92	1.5/6.0	108.45	346
2012-13	50.53	6.0	55.98	359

- Rate was changed w.e.f 15.07.2011.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Ash water recirculation system for stage-II and stage-III is in service and 2.5 cusec water is recycled. Quantity of recycling of effluent discharge is 0.5 cusec.

2-e) Measures taken for reducing consumptive water than the designed value

- Water from effluent treatment plant is being recycled.
- Various water conservation measures are being taken to reduce consumption of water.

2-f) Linkage of water as per the agreement

The linkage of water for FGUTPP is 105 cusec as per agreement with U.P irrigation department.

14. Badarpur:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (KL)	Quantity Allotted (Cusec)	Royalty of Water @ L/Cusec	Canal Maint. & Misc. Charges (Rs Lacs)	Total Water Charges (Rs Lac)
2009-10	349360998	48.60	1.5	0	73
2010-11	344814888	48.60	1.5	0	73
2011-12	323496648	48.60	1.5/6.0	433.16	683
2012-13	303819730	48.60	6.0	200.35	581

- Rate was changed w.e.f 15.07.2011.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant.

Station has commissioned DAETS in STAGE # I (3x95 MW Units) from July 2010 and DAETS in STAGE # II (2x2010MW) from September 2011. But Bottom ash of the station sent to ash pond in the form of ash slurry.

2-e) Measures taken for reducing consumptive water than the designed value

2-f) Linkage of water as per the agreement

The quantity of water allocated for Badarpur is 48.60 cusec.

15. Tanda:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Quantity Consumed (Cu M)	Royalty of Water @ L/Cusec	Total Water Charges (Rs Lac)
2009-10	36389816	1.5	61
2010-11	37105380	1.5	62
2011-12	35604590	1.5/6.0	185
2012-13	37171029	6.0	244

- Rate was changed w.e.f 15.07.2011.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

DAES is yet to be fully commissioned.

2-e) Measures taken for reducing consumptive water than the designed value

Flow meters are being installed for measurement and control of system-wise water consumption.

2-f) Linkage of water as per the agreement

The linkage of water for Tanda is 45 cusec as per agreement.

Gas Stations16. Anta:

2 a) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Water Quantity (Cu ft)	Rate @ Rs / 1000 cu. Ft	Watch & Ward Charges (Rs)	Total Water Charges (Rs Lacs)
2009-10	104760000	20	1067373	32
2010-11	104760000	20	1160418	32
2011-12	104760000	20	1254874	34
2012-13	104760000	20	1394177	35

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Not applicable since it is a gas station.

2-e) Measures taken for reducing consumptive water than the designed value

- ii) Optimization of Drinking Water Supply
- iii) Stopping of Cooling Towers Fans whenever possible
- iv) Better utilization of waste water

2-f) Linkage of water as per the agreement

Water is drawn as per MOM with Govt. of Rajasthan dated 27.12.1988 & 13.02.1992 and paid based on actual consumption.

17. Auraiya:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Water Quantity (Cu sec)	Rate @ Lac Rs / cu. Sec	Maintenance Charges (In Lacs)	Total Water Tax (In Lacs)	Total Water Charges (Rs Lacs)
2009-10	13	1.5	4.21	-	24
2010-11	13	1.5	4.84	-	24
2011-12	13	1.5/6.0	5.26	28.59	66
2012-13	13	6.0	5.76	33.92	145

*28.59 Lacs of water tax for the year 2011-12 was paid in the year 2012-13. Water charges were increased from Rs 1.5 Lacs per cusec per year to Rs 6.0 Lacs per cusecs per year w.e.f 15.07.2011.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Total recycling of effluent water during 2009-10 to 2012-13 is 883,808 M³ /Year.

2-e) Measures taken for reducing consumptive water than the designed value

- v) Stopping of Cooling Towers Fans whenever possible
- II) Optimization of Drinking Water Supply
- III) Better utilization of waste water
- IV) Cooling Tower drift eliminators are being replaced periodically.

2-f) Linkage of water as per the Agreement

Linkage of water with U.P irrigation Dept. as per agreement is 13 cusec.

18. Faridabad:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Water Quantity (Cu ft)	Rate @ Rs / cu. Ft	Payment made to U.P irrigation separately (In Rs)	Total Water Charges (Rs Lacs)
2009-10	167163200	0.1	153000	169
2010-11	150000000	0.1	153000	152
2011-12	136000000	0.1/0.12*	166000	157
2012-13	121000000	0.12	161333	147

*Rate was increased from Rs 0.1 per cu ft to Rs 0.12 per cu ft w.e.f Aug 2011.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Not applicable since it is a gas station.

2-e) Measures taken for reducing consumptive water than the designed value

- I) Stopping of Cooling Towers Fans whenever possible
- II) Optimization of Drinking Water Supply
- III) Better utilization of waste water
- IV) Instead of ground/raw water, CW blow down water is being used for horticulture purpose through a separately installed pump.

2-f) Linkage of water as per the agreement

Linkage of water with Haryana irrigation Dept. as per Agreement is 24 cusec.

19. Kawas:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Rate of Drinking water charges (Rs/Cu M)	Actual Drinking Water consumption (Cu M)	Rate of Industrial Water Charges (Rs/Cu M)	Actual Industrial Water Consumption (Cu M)	Total Water Charges (Rs Lac)
2009-10	1.33	76650	11	6421083	707
2010-11	1.46	76650	12.10	6128667	743
2011-12	1.61	76650	13.31	5840345	779
2012-13	1.77	76650	14.64	4589443	672

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Not applicable since it is a gas station.

2-e) Measures taken for reducing consumptive water than the designed value

- I) Station has increased the Cycles of Concentration (COC) of CW system from design value of 1.65 to 5.0 by installation of Side Stream filtration system. This has contributed in saving of approx. 1000 Cu M/Hr of makeup water to CW system.
- II) Station is reusing the CW Blow-down water @ 45 Cu M/Day for horticultural activities in plant premises.
- III) Station is recycling the sampling drains of SWAS (Steam Water Analysis System) @ 14 M³ /Day in the main plant area. These drains are recycled back to the process system.

2-f) Linkage of water as per the agreement

Linkage of water with Govt of Gujrat for supply of 15 MGD from Singapore weir.

20. Gandhar:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Rate of Drinking water charges (Rs/Cu M)	Actual Drinking Water consumption (Cu M)	Rate of Industrial Water Charges (Rs/Cu M)	Actual Industrial Water Consumption (Cu M)	Total Water Charges (Rs Lac)
2009-10	1.33	36500	11	8554984	942
2010-11	1.46	36500	12.10	7721685	879
2011-12	1.61	36500	13.31	7318666	975
2012-13	1.77	36500	14.64	6470617	950

*55 Lac amount was refunded back in 2010-11.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Not applicable since it is a gas station.

2-e) Measures taken for reducing consumptive water than the designed value

- I) Operation of CW system at 4-4.5 cycles of concentration.
- II) Recycling of filter backwash water to CW system.
- III) Recycling of treated sewage water in horticulture
- IV) Recycling of WHRB blow down/drain to CW system

2-f) Linkage of water as per the agreement

Linkage of water with Govt of Gujrat is for supply of 40 cusec as on date.

21. Kayamkulam:

2-b) Detailed working of water charges claimed indicating rate and actual water consumption is as under:

Year	Process Water (Kl)	Domestic Water (Kl)	Cooling Water (Kl)	Rate of Water Charges (Rs/Kl)	Total Water Charges (Rs Lac)
2009-10	206912	333270	2862070	1	5
2010-11	150901	315382	2227107	1	5
2011-12	66128	247950	883802	1	5
2012-13	122918	298953	2156807	1	5

*Maximum annual water charge to be paid as per agreement with Govt. of Kerala is Rs 5 lac only.

2-d) Reduction in consumptive water due to dry fly ash system and ash utilization and recycling of effluent discharge from each plant

Not applicable since it is a gas station.

2-e) Measures taken for reducing consumptive water than the designed value


- I) Operation of CW system at 10-12 cycles of concentration.
- II) Rain water harvesting at balancing reservoirs as well as collection of roof drains.
- III) Reuse of plant effluent water for horticulture and summer cooling of naphtha tanks as well as filling of fire water tanks with Cooling tower Blow down
- IV) Use of dewatering centrifuge in WTP etc.

2-f) Linkage of water as per the agreement

Maximum annual water charge to be paid as per agreement with Govt. of Kerala is Rs 5 lacs.

Since, the information was required to be collected from the all stations there has been delay in the filing of the information. It is prayed that delay in filing the information may kindly be condoned.

In view of the above submissions, the Hon'ble Commission may be pleased to allow the relief as prayed for in the Petition.



(Petitioner)

New Delhi,
05.05.2014