

**No.L-7/107(123)/CERC-2008
CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

1. **Shri Bhanu Bhushan, Member**
2. **Shri R. Krishnamoorthy, Member**

In the matter of

Terms and condition of tariff for the next tariff period starting from 1.4.2009- Seeking of information from Central Generating Companies and Central/Inter-State Transmission Companies

ORDER

The Commission has started the process of finalizing the terms and conditions of tariff for the tariff period commencing on 1.4.2009. In order to facilitate this process of finalization of terms and conditions of tariff, the generating companies namely NTPC, NLC, NEEPCO, DVC, NHPC, THDC, NHDC, SJVNL and transmission licensees namely Powergrid and Powerlinks Transmission Ltd. are directed to furnish the details of actual performance, operation and O&M expenditure for the financial years 2002-03 to 2006-07 in respect of their thermal generating stations, hydro generating stations and transmission systems, as the case may be, along with any specific or special features of the generating station and the transmission system.

2. In that context, for thermal generating stations, the generating companies namely, NTPC, NLC, NEEPCO and DVC are required to furnish the correct and verified actual data of actual and scheduled generation, declared capacity, consumption of main, secondary or alternate fuel along with average price and GCV of fuels, Auxiliary energy consumption excluding colony consumption, details of fuel stock maintained at the station, maximum

storage capacity of fuel stocks of the generating station, transit and handling losses of coal/lignite, data relating to planned and forced outages etc. on annual basis for the years 2002-03 to 2006-07 in the prescribed formats for each of the coal/lignite based generating stations (Annexure-I) and gas/liquid fuel based generating stations (Annexure-II).

3. Since the generating stations based on technology using super critical boiler namely Sipat, Barh etc. are under construction, the Commission intends to finalise the performance and operational norms for such generating stations as well. NTPC is, therefore, directed to furnish a reasonable estimate of performance and operational parameters along with the requisite details of turbine heat rate, boiler efficiency, unit and station auxiliary energy consumption excluding colony consumption, heat balance diagram of the generating stations, correction curves like variation in gross heat rate with variation in load, life cycle degradation factor, etc to enable the Commission to take a view in this regard. NTPC should clearly state the methodology in making such estimates supported by all relevant information.

4. For hydro generating stations, the generating companies within the regulatory jurisdiction of the Commission, namely NHPC, NHDC, NEEPCO, DVC, THDC and SJVNL are required to furnish the generation data relating to actual and scheduled generation, auxiliary consumption, average declared capacity and actual average peak hour MW during the year, weighted average duration of outages, etc on annual basis for the years 2002-03 to 2006-07 in the prescribed format (Annexure-III). In case of storage type of schemes, the generating companies shall also furnish information relating to live storage capacity of reservoir, head at Full Reservoir Level (FRL) and at Minimum Draw Down Level (MDDL),

MW capability at FRL and MDDL and month-wise details of the design energy on ten-day basis as approved by CEA, in the above format.

5. Similarly, for transmission systems, the transmission licensees, namely Power Grid Corporation of India Ltd. and Powerlinks Transmission Ltd. should furnish the operational data in the prescribed format (Annexure-IV).

6. All the utilities shall furnish the annual operation and maintenance expenses for the financial years 2002-03 to 2006-07 for all their generating stations/ transmission systems in the prescribed format (Annexure-V). The break-up of corporate expenses at the corporate levels should be furnished separately along with actual allocation to various functional activities including functional activity of power generation or the transmission business, as the case may be, in format at Annexure-VI. The methodology for allocation of corporate manpower and expenses to various functional activities and further allocation of corporate office expenses pertaining to power generation/ transmission business to each of the generating stations or the transmission systems, as the case may be, shall also be furnished.

7. As per the tariff regulations 2004, the normative operation and maintenance charges for the transmission system for the period 2004 to 2009 are in terms of Rs. / Ckt. Km for transmission lines and Rs. / bay for sub-stations and these have been notified after considering Powergrid's actual O&M data for the period 1997-98 to 2001-02, without any distinction of AC and DC systems and any specific consideration of voltage level, MW capability, conductor configuration, etc.

8. All the five regions in the country have transmission network mainly owned, operated and maintained by Powergrid. As the vast Powergrid network has variety of assets i.e. AC line with different voltage levels, HVDC, Thyristor Controlled Series Compensation (TCSC), Fixed Series Compensation (FSC) etc, existing aggregate O&M norm has been reasonable for Powergrid. In the recent past, new entities have entered the transmission sector. Part of Tala transmission system, comprising only for transmission lines has been recently constructed by Powerlinks Transmission Limited (PTL) based on transmission licence granted by the Commission and PTL operates and maintains this part. The Commission has also granted transmission licence to Torrent Power Transmission Limited (TPTL) and JP Power Transmission Limited for construction, operation and maintenance of transmission systems (400 kV lines only) associated with Torrent and Karchem Wangtoo generating stations respectively. Therefore, with the opening of transmission sector there is a need to review the existing methodology of specifying aggregate O&M norms for the tariff period commencing on 1.4.2009. In order to take a pragmatic view in this regard, i.e. whether there should be a voltage-wise differentiation etc, transmission licensees including Powergrid are to furnish the required additional information in the prescribed format as given at Annexure-VII.

9. The utilities may bring to the notice of the Commission any other relevant factor or additional information having bearing on the performance and operational parameters or the O&M expenses specifically. Any variation of more than 20% in any head of O&M expenses should be explained properly giving reasons for such variation.

10. All concerned are directed to furnish the necessary details as per the formats annexed for the period commencing from 2002-03 to 2006-07 by 31.3.2008. The data relating to performance and operational parameters and O&M expenses for the year 2007-08 may also be furnished separately by 30.6.2008.

11. Those concerned may also examine the enclosed proforma carefully, and in case any difficulty is foreseen in providing the requisite information, the Commission may be approached within 15 days of this order for necessary clarification.

Sd/-
(R. KRISHNAMOORTHY)
MEMBER

Sd/-
(BHANU BHUSHAN)
MEMBER

New Delhi dated the 7th January 2008

Performa for furnishing Actual annual performance/operational data for the coal/lignite based thermal generating stations for the 5-year period from 2002-03 to 2006-07

1	Name of Company	
2	Name of Station	
3	Installed Capacity (MW) and Configuration	
4	Rated Steam Parameters (Also state the type of Steam turbine and Boiler)	
5	Type of BFP	Electrical Driven or Steam driven
6	Circulating water system	Closed Cycle or open cycle
7	Any other Site specific feature	
8	Fuels	
8.1	Main Fuel	Coal/Lignite
8.1.1	Annual Allocation/ Requirement	
8.1.2	Sources of supply	
8.1.3	Distance of the station from the sources of supply	
8.1.4	Mode of Transport	Rails/Road/Sea/Conveyor/MGR/Ropeway
8.1.5	Maximum Station capability to stock main fuel	
8.2	Secondary Fuel	
8.2.1	Annual Allocation/ Requirement	
8.2.2	Sources of supply	
8.2.3	Distance of the station from the sources of supply	
8.2.4	Mode of Transport	Rails/Road/Pipeline
8.2.5	Maximum Station capability to stock secondary fuels	
9.	Cost of Spares	
9.1	Cost of Spares capitalized in the books (Rs. Lakh)	
9.2	Cost of spares included in capital cost for the purpose of tariff (Rs. Lakh)	

Annexure I SH 2/3

	Period	2002-03	2003-04	2004-05	2005-06	2006-07
10	Generation (MU)	_____	_____	_____	_____	_____
10.1	-Actual Gross Generation at generator terminals					
10.2	-Actual Net Generation Ex-bus					
10.3	-Scheduled Generation Ex-bus					
11	Average Declared Capacity (DC) (MW)					
12	Actual Auxiliary Energy Consumption excluding colony consumption (MU)					
13	Actual Energy supplied to Colony from the station (MU)					
14	Main Fuel					
14.1	Consumption (MT)					
14.2	Weighted Average Gross Calorific value (As fired) (kCal /Kg)					
14.3	Weighted Average Price (Rs per MT)					
14.4	Actual Average stock maintained (MT)					
14.5	Actual Transit & Handling Losses for coal/Lignite (%)					
15	Secondary Fuel Oil					
15.1	Consumption (MT/KL)					
15.2	Weighted Average Gross Calorific value (As fired) (kCal /Kg or L)					
15.3	Weighted Average Price (Rs per MT or KL)					
15.4	Actual Average stock maintained (MT or KL)					
16	Weighted average duration of outages	_____	_____	_____	_____	_____
16.1	Scheduled Outages (Days)					
16.2	Forced Outages (Days)					

Annexure I SH 3/3

	Period	2002-03	2003-04	2004-05	2005-06	2006-07
17	Cost of spares actually consumed in Rs. Lakhs					
18	Average stock of spares (Rs. Lakhs)					
19	Number of employees deployed in O&M					
19.1	- Executive					
19.2	- Non Executive					

Notes:

1. List of beneficiaries/customers along with allocation by GoI including allocation of unallocated share / capacity as contracted shall also be furnished separately.
2. In case of two or more secondary fuels, information should be furnished for each of the secondary fuel.
3. In case of two or more stages or two or more unit sizes, information should be furnished separately to the extent possible.
4. A brief write-up on the methodology to arrive at the above performance & operation parameters should also be furnished.
5. Any relevant point or a specific fact having bearing on performance or operating parameters may also be highlighted or brought to the notice of the Commission.

Performa for furnishing Actual annual performance/operational data for the Gas/Liquid Fuel based thermal generating stations for the 5 year period from 2002-03 to 2006-07

1	Name of Company	
2	Name of Station	
3	Installed Capacity (MW) and Configuration	
4	Make of Turbine	
5	Rated Steam Parameters	
6	Average site ambient conditions	
7	Any other Site specific feature	
8	Fuels	
8.1	Main/Primary Fuel	Natural Gas/RLNG/LNG/Naphtha/NGL
8.1.1	Annual Allocation/ Requirement	
8.1.2	Sources of supply	
8.1.3	Distance of the station from the Sources of supply	
8.1.4	Mode of Transport	Rail/Road/Pipeline/Sea
8.1.5	Maximum Station capability to stock main/primary fuel	
8.2	Alternate Fuel	Naphtha/HSD/Any other
8.2.1	Annual Allocation/ Requirement	
8.2.2	Sources of supply	
8.2.3	Distance of the station from the Sources of supply	
8.2.4	Mode of Transport	Rail/Road/Pipeline/Sea
8.2.5	Maximum Station capability to stock secondary fuels	
9	Cost of Spares	
9.1	Cost of Spares capitalized in the books (Rs. Lakhs)	
9.2	Cost of spares included in capital cost for the purpose of tariff (Rs. Lakhs)	

Annexure II SH 2/3

Period		2002-03	2003-04	2004-05	2005-06	2006-07
10	Generation (MU)					
10.1	-Actual Gross Generation at generator terminals	_____	_____	_____	_____	_____
10.1.1	Total					
10.1.2	On Gas					
10.1.3	On Naphtha or any other liquid fuel					
10.2	-Actual Net Generation Ex-bus					
10.3	-Scheduled Generation Ex-bus					
11	Average Declared Capacity (DC) (MW)					
12	Actual Auxiliary Energy Consumption excluding colony consumption (MU)					
13	Actual Energy supplied to Colony from the station (MU)					
14	Main/Primary Fuel					
14.1	Consumption (MT or KL)					
14.2	Weighted Average Gross Calorific value (As fired) (kCal /Kg or Litre)					
14.3	Weighted Average Price (Rs per MT or KL)					
14.4	Actual Average stock maintained (MT or KL)					
15	Alternate Fuel					
15.1	Consumption (MT/KL)					
15.2	Weighted Average Gross Calorific value (As fired) (kCal /Kg or Litre)					
15.3	Weighted Average Price (Rs per MT or KL)					
15.4	Actual Average stock maintained (MT or KL)					
16	Weighted average duration of outages	_____	_____	_____	_____	_____
16.1	Scheduled Outages (Days)					
16.2	Forced Outages (Days)					

Annexure II SH 3/3

	Period	2002-03	2003-04	2004-05	2005-06	2006-07
17	Cost of spares consumed in Rs. Lakhs					
18	Average stock of spares in Rs. Lakhs					
19	Number of employees deployed in O&M					
19.1	- Executive					
19.2	- Non Executive					

Notes:

1. List of beneficiaries/customers along with allocation by GoI including allocation of unallocated share / capacity as contracted shall also be furnished separately.
2. In case of two or more alternate fuels, information should be furnished for each of the alternate fuel. Gross generation on generator terminal for different fuel may be based on estimates.
3. In case of two or more stages or two or more unit sizes, information should be furnished separately to the extent possible.
4. A brief write-up on the methodology to arrive at the performance & operation parameters should also be furnished.
5. Any relevant point or a specific fact having bearing on above performance or operating parameters may also be highlighted or brought to the notice of the Commission.

Annexure III SH 1/3

Performa for furnishing Actual annual performance/operational data for the Hydro Electric generating stations for the 5-year period from 2002-03 to 2006-07

1	Name of Company					
2	Name of Station					
3	Installed Capacity (MW) and Configuration					
4	Station Location	Under ground or Surface				
5	Type of Excitation System					
6	Live Storage Capacity (Million Cubic Metres)					
7	Rated Head (Metres)					
8	Head at Full Reservoir Level (FRL) (Metres)					
9	Head at Minimum Draw down Level (MDDL) (Metres)					
10	MW Capability at FRL					
11	MW Capability at MDDL					
12	Cost of spares	_____				
12.1	Cost of spares capitalized in books (Rs. Lakhs)					
12.2	Cost of spares included in the capital cost for the purpose of tariff (Rs. Lakhs)					
	Period	2002-03	2003-04	2004-05	2005-06	2006-07
13	Generation (MU)	_____	_____	_____	_____	_____
13.1	Actual Gross Generation at Generator Terminals					
13.2	Actual Net Generation Ex-bus including free power					
13.3	Scheduled generation Ex-bus including free power					
14	Actual Auxiliary Energy Consumption excluding colony consumption (MU)					
15	Actual Energy supplied to Colony from the station (MU)					
16	Average Declared Capacity during the year (DC) (MW)					

Annexure III SH 2/3

	Period	2002-03	2003-04	2004-05	2005-06	2006-07
17	Weighted Average duration of	_____	_____	_____	_____	_____

	outages					
17.1	Scheduled outages (Days)					
17.2	Forced outages (Days)					
18	Cost of spares actually consumed (Rs. Lakhs)					
19	Average stock of spares (Rs. Lakhs)					
20	Number of employees deployed in O&M					
20.1	- Executive					
20.2	- Non Executive					

Month wise Design Energy

Month	Period	Design Energy as approved by CEA (MU)	Month	Period	Design Energy as approved by CEA (MU)
April	1-10		October	1-10	
	11-20			11-20	
	21-30			21-31	
May	1-10		November	1-10	
	11-20			11-20	
	21-31			21-30	
June	1-10		December	1-10	
	11-20			11-20	
	21-30			21-31	
July	1-10		January	1-10	
	11-20			11-20	
	21-31			21-31	
August	1-10		February	1-10	
	11-20			11-20	
	21-31			21-28	
September	1-10		March	1-10	
	11-20			11-20	
	21-30			21-31	
			Total		

Annexure III SH 3/3

Notes:

1. List of beneficiaries/customers along with allocation by GoI including allocation of unallocated share / capacity as contracted should also be furnished separately.

2. Average Declared Capacity should be as per regulation 31(xi) of CERC tariff regulation for the period 2004-09. Information may also be furnished month wise.
3. A brief write-up on the methodology to workout the performance & operation parameters should also be furnished.
4. Any relevant point or a specific fact having bearing on performance or operating parameters may also be highlighted or brought to the notice of the Commission.

Performa for furnishing Actual annual performance/operational data for the Transmission Systems for the 5-year period from 2002-03 to 2006-07

Table-1- Region wise information (average for the year, but otherwise total for the region) for AC system

Srl No.		2002-03	2003-04	2004-05	2005-06	2006-07
1.	Average number of A.C. sub-station in operation					
2.	Average ckt-km of A.C. lines in operation					
3.	Total number of employees engaged in substation O&M					
4.	Total number of employees engaged in line O&M					
5.	Auxiliary power consumption in MU (excluding colony power)					
6.	Colony power consumption (MU)					
7.	Average outage duration (hours/year) for a) transmission lines b) transformers c) reactors					
8.	Cost of spares a) Capitalized b) Consumed c) In Stock					

Table-2- Station wise information (average for the year, but otherwise total for the station) for HVDC system

	2002-03	2003-04	2004-05	2005-06	2006-07
Total number of employees engaged in substation O&M					
Total number of employees engaged in line O&M					
Auxiliary power consumption in MU (excluding colony power)					
Colony power consumption (MU)					
Outage duration in pole - days					
Loading curtailment in MW - days					
Cost of spares a) Capitalized b) Consumed c) In Stock					

Annexure V

DETAILS OF OPERATION AND MAINTENANCE EXPENSES						
(To be filled for each of the generating station or transmission region)						
Name of the Company:						
Name of the Power Station or Transmission Region						
						(Rs. In Lakhs)
Sl.No.	ITEMS	2002-03	2003-04	2004-05	2005-06	2006-07
1	2	3	4	5	6	7
(A)	Breakup of O&M expenses					
1	Consumption of Stores and Spares					
2	Repair and Maintenance					
3	Insurance					
4	Security					
5	Administrative Expenses					
a	- Rent					
b	- Electricity Charges					
c	- Traveling and conveyance					
d	- Communication expenses					
e	- Advertising					
f	- Foundation laying and inauguration					
g	- Donations					
h	- Entertainment					
	Sub-Total (Administrative Expenses)					
6	Employee Cost					
a	-Salaries, wages and allowances					
b	-Staff welfare expenses					
c	-Productivity linked incentive					
d	- Expenditure on VRS					
e	-Ex-gratia					
	Sub-Total (Employee Cost)					
7	loss of store					
8	Provisions					
9	Corporate office expenses allocation					
10	- Others (Specify items)					
11	Total (1 to 10)					
12	Revenue/ Recoveries, if any					
13	Net Expenses					
Notes:						
I. The methodology of allocation of corporate expenses to various functional activities and allocation of Corporate expenses pertaining to power generation/transmission system to each operating stations/ transmission region/system and stations/transmission region/system under construction should be clearly specified.						
II. An annual increase in O&M expenses under a given head in excess of 20 percent should be explained.						
III. The data should be based on audited balance sheets.						
IV Details of arrears, if any pertaining to period prior to the year 2002-03 should be mentioned separately.						
V No. of employees opting for VRS during each year should be indicated.						
VI Details of abnormal expenses, if any shall be furnished separately.						

Annexure VI

DETAILS OF RUNNING EXPENSES (At Corporate Level)						
Name of the Company:						
						(Rs. In Lacs)
Sl.No.	ITEMS	2002-03	2003-04	2004-05	2005-06	2006-07
1	2	3	4	5	6	7
(A)	Breakup of corporate expenses (Aggregate at Comp. level)					
1	- Employee expenses					
a	-Salaries, wages and allowances					
b	-Staff welfare expenses					
c	-Productivity linked incentive					
d	- Expenditure on VRS					
e	-Ex-gratia					
2	Administrative Expenses					
a	- Repair and maintenance					
b	- Training and Recruitment					
c	- Communication					
d	- Traveling & Conveyance					
e	- Rent					
f	- Others (Specify items)					
	Sub - Total (Administrative Expenses)					
3	Security					
4	Donations					
5	Provisions					
6	Others (specify items)					
7	Total (1 to 6)					
8	Less recoveries (if any)					
9	Net Corporate Expenses (Aggregate)					
(B)	Allocation of Corporate Expenses to various Functional Activities like					
1	Power Generation/Transmission O&M					
2	Project management/Projects under Construction					
3	RLDC and ULDC					
4	Consultancy Business					
5	Telecommunication Business					
6	Any other					
	Note: Heads indicated above are illustrative. Generating companies or the transmission utilities may furnish the allocations in different functional activities suited to their company.					
(C)	Allocation of Corporate Expenses relating to functional activity of power Generation or the transmission to various generating stations or the transmission region/systems as the case may be.					
1	Generating station 1 / Transmission Region 1					
2	Generating station 2 / Transmission Region 2					

Additional Region-wise Information required from Transmission Licensees

1. Name of transmission company:
2. Name of transmission region:

Table-1- Length (km) of transmission lines in commercial operation

	Status as on				
	1.4.2003	1.4.2004	1.4.2005	1.4.2006	1.4.2007
HVDC					
765 kV					
400 kV a) S/C b) D/C					
220 kV a) S/C b) D/C					
Up to 132 kV a) S/C b) D/C					

Table-2- Ckt km by conductor configuration

	Status as on				
	1.4.2003	1.4.2004	1.4.2005	1.4.2006	1.4.2007
Quad					
Triple					
Twin					
Single					

Table-3- Number of AC substations in commercial operation

	Status as on				
	1.4.2003	1.4.2004	1.4.2005	1.4.2006	1.4.2007
765 kV					
400 kV					
220 kV					
Up to 132 kV					

Table-4- Number of substations bays in commercial operation

	Status as on				
	1.4.2003	1.4.2004	1.4.2005	1.4.2006	1.4.2007
HVDC					
765 kV					
400 kV					
220 kV					
Up to 132 kV					

Table-5- Cost of outsourcing of services

	2002-03	2003-04	2004-05	2005-06	2006-07
Substation O&M					
Lines O&M					
Security					
Others					

Table-6- Total O&M expenditure including RHQ, but excluding HVDC stations (Rs lakh)

	2002-03	2003-04	2004-05	2005-06	2006-07

Table-7- Total O&M expenditure at HVDC station (Rs lakh)

	2002-03	2003-04	2004-05	2005-06	2006-07
Rihand					
Dadri					
Talchar					
Kolar					
Vindhyachal					
Chandrapur					
Gazuwaka					
Sasaram					