

The above AFC for the period 2009-14 shall be subject to truing-up as per Clause 5(3) of CERC Regulation '2009.

- 27) The proposal for tariff for the period from 01-04-2009 to 31-03-2014 is inclusive of MAT (grossed up RoE), but exclusive of any other statutory taxes, levies, duties, cess or any other kind of imposition(s) whatsoever imposed/ charged by any Government (Central/ State) and / or any other local bodies/ authorities/ regulatory authorities in relation to generation of electricity including auxiliary consumption or any other types of consumption including water, transmission of power, environmental protection, sale or on supply of power/ energy, and/ or in respect of any of its installations associated with Generating Stations and / or on transmission System.
The total amount of other taxes/ duties/ cess/ levies etc. payable by NHDC to the authorities concerned in any period as above may be borne and additionally paid by the respondents to NHDC and the same may be allowed to be charged in the monthly bills raised by NHDC on the respondents.
- 28) The Petitioner, through the instant Petition intends to once again draw the kind attention of Hon'ble CERC on the following issues, to which the Petitioner has been representing (Page 355 to 365) from time to time, for consideration & redressal by Hon'ble CERC:

[A] Normative Plant Availability Factor (NAPAF) of Indira Sagar Project:

Under Clause 27 of CERC Regulation '2009 the norms of operation of hydro power generating station have been notified. As per these norms, a new concept of Plant Availability Factor (PAFY) has been introduced in place of Capacity Index as per CERC Regulation '2004. The PAFY has been defined as a ratio of Average Declared Capacity(Ex-Bus) during a year to the Installed Capacity (Ex-Bus) of Power Station.

The recovery of capacity charges shall be as per following formula given under Clause 22 (2) of CERC Regulation '2009:

$$\text{Capacity Charges (in Rupees)} = \text{AFC} \times 0.5 \times \text{NDM} / \text{NDY} \times (\text{PAFM} / \text{NAPAF})$$

Where,

AFC =	Annual fixed cost specified for the year, in Rupees.
NAPAF =	Normative plant availability factor in percentage
NDM =	Number of days in the month
NDY =	Number of days in the year
PAFM =	Plant availability factor achieved during the month, in percentage



The PAFM shall be computed in accordance with the following formula :

$$\text{PAFM} = 10000 \times \frac{\sum_{i=1}^N \text{DC}_i}{\{ N \times \text{IC} \times (100 - \text{AUX}) \}} \%$$

Where,

- AUX = Normative auxiliary energy consumption in percentage
DC_i = Declared capacity (in ex-bus MW) for the ith day of the month which the station can deliver for at least three (3) hours, as certified by the nodal load dispatch centre after the day is over.
IC = Installed capacity (in MW) of the complete generating station
N = Number of days in the month

Normative Annual Plant Availability Factor (NAPAF) is Project Specific and the same has been tabulated under Clause 27(5) of Regulation '2009. The NAPAF for Indira Sagar Project has been specified as 85%.

With the above background, the Petitioner respectfully submits the following facts in respect of PAFY and NAPAF of Indira Sagar Project:

- a. For big reservoirs like Indira Sagar, the reservoir level changes from Maximum at the end of Monsoon (somewhere in the month of October) to minimum at the beginning of next monsoon (somewhere in the end of June or first week of July). During post monsoon period (November to June), the Indira Sagar reservoir depletes gradually down from Maximum to MDDL i.e. EL 243.23 M. Accordingly, the available head for power generation varies from maximum of 65 M to 46 M at MDDL.
- b. The machines of Indira Sagar Project have been designed for 60 m water head and thus, the demonstration of rated installed capacity of 125 MW / Machine is possible only when the reservoir level is at EL 255.0 M or above. Below EL 255.0 M, the machine rating get reduced gradually in commensurate to the available head and it reduces even up to 85 MW against the rated nameplate capacity of 125 MW.
- c. Taking the above facts into consideration, the month-wise peaking capability of Indira Sagar Project for 90% dependable year was defined in the Techno-economic Clearance of CEA. Accordingly, the Hon'ble Commission had admitted the same under Para 59 (Page 174) of Final Tariff Order dated 06-02-2007 in Petition No. 119/2005. Thus the month-wise average Peaking Capabilities vis-à-vis the maximum Annual Average Capacity (i.e. without outages) shall be as below:



Month	Peaking Capability (MW)	Annual Average Capacity (MW)
April	922	952
May	852	
June	765	
July	912	
August	1000	
September	1000	
October	1000	
November	1000	
December	1000	
January	1000	
February	1000	
March	979	

As such, the Maximum Average (Ex-Bus) Declared Capacity could be 942.48 MW and accordingly, the maximum PAFY of Indira Sagar Project could be achieved only upto 95.20% without any outages, which corresponds to 100% Capacity Index (CI) as per CERC Regulation '2004 (i.e. all 8 No. Generating Machines are available throughout the year).

As per the norms of operation specified for storage type power station in CERC Regulation '2004, the normative Capacity Index was fixed as 85%, which implies that the Generating Machines could be taken for Planned Outages for a maximum of 15 % time period spread over the year, without loss of any Fixed Charges. Thus corresponding to this normative Capacity Index i.e. 85%, the PAFY as per new norms works out to 80.92% (= 95.20% x 0.85) during 90% dependable year. In case of failure of monsoon and in the eventuality of filling of reservoir less than EL 255.0 M, the probability of further lowering down of PAFY below 80.92% may not be ruled out, even if Project demonstrates the machine availability of 85% or more, in terms of Capacity Index as per CERC regulation '2004.

Taking into consideration the above facts related to Indira Sagar Project, the Petitioner has been representing for modification in the Formula of PAFY by replacing the term 'Installed Capacity' with the term 'Peaking Capabilities' or to re-fix the NAPAF as 75%, so that the Petitioner may not be deprived from recovery of 50% of AFC in the form of Capacity Charges, for reasons beyond the control of Generator such as partial filling of reservoir consequent to failure of monsoon.

It is respectfully submitted that, Hon'ble CERC under Clause 22(6) of CERC Regulation '2009, has made provisions for making-up of Energy Charges shortfall on a rolling basis, in the eventuality of generation being less than Design Energy, for reasons beyond the control of Generating Company. However, no such provision has been made for making -up of shortfall in Capacity Charges in the eventuality of non-achievement of NAPAF, for reasons beyond the control of Generating Company.

Hon'ble CERC may take the above facts into cognizance and like to issue such order as deemed fit in the matter.

[B] Grossing-up of pre-tax RoE (Regulation 15):

As per Clause 15 (1) of CERC Regulation '2009, the RoE shall be computed on pre-tax basis at the base rate of 15.5 % to be grossed up as per Clause 15(3). The Clause 15(3) stipulates that, *"the rate of RoE shall be computed by grossing up the base rate i.e. 15.5% with the normal tax rate for the year 2008-09 applicable to the concerned generating company, provided that RoE with respect to the actual tax rate applicable to the generating company shall be in line with the provisions of relevant Finance Act for the respective year during the tariff period (2009-14) and shall be trued up separately for each year of the tariff period along with the tariff petition filed for the next tariff period."*

NHDC vide letter No. NHDC/1/Comm./44/09/586 dated 25-09-2009 (Page 364 to 365) had represented the matter and brought the following facts to the kind notice of the Hon'ble CERC:

- (1) In the Finance Act '2009, rate of MAT has been increased from 10% (excluding surcharge and education cess) to 15% excluding surcharge (10%) and education cess (3%) w.e.f. 01-04-2009.
- (2) The CERC Regulation '2009 for the tariff period 2009-14 is also made applicable from the same date viz. 01-04-2009.
- (3) When the regulations were issued, the prevailing MAT @ 10% was applicable. Since both Finance Act '2009 and CERC Regulation '2009 have been made applicable w.e.f. 01-04-2009, the applicable tax rate by which the RoE is to be grossed-up needs review by the Hon'ble Commission. The grossing-up of RoE be allowed with



prevailing rate of MAT @ 16.995% (i/c surcharge and Cess) as per Finance Act, 2009.

- (4) With above formula for grossing-up of RoE and applicable rate of Tax as per Finance Act '2009, the grossed-up RoE works-out to 18.674% instead of 17.481%, to those generating company or the transmission licensee paying MAT.

It was further brought to the kind notice of Hon'ble CERC that the above, if not reviewed at present, would result into accumulation of dues for a period of 5 years at the time of truing-up and such situation would be conducive neither for Generator nor for the Beneficiary.

It is pertinent to mention here that in the Finance Bill '2010, Rate of MAT has further been increased to 18%.

Hon'ble CERC may take the above facts into cognizance and like to issue such order as deemed fit in the matter.

- 29) It is also to mention here that the current Design Energy of ISPS as admitted by Hon'ble CERC is 1980 MU. It corresponds to *Stage-I* of the Project as indicated in Para 8 above. In this regard, it is to intimate that the Respondent No. 2 has already constructed substantial portion of main Canal and has commenced drawing water for irrigation purposes from Indira Sagar Reservoir through Canal Head Regulators. Accordingly, the Indira Sagar Project is now heading towards its *Stage-II* from the existing *Stage-I*. In this regard as per introductory note downloaded from the website (www.nvda.nic.in) (Page 352 to 354) of Respondent No. 2, the following three phases of Canal Development have been indicated:

Phase	Canal Reach	Year of Completion
Phase -I	Main Canal from 0 to 71 Km	March -2008
Phase - II	Main Canal from 71 Km to 206 Km	June -2009
Phase - III	Main Canal from 206 Km to 248.65 Km & khargone Lift Scheme	June -2011

Hon'ble CERC may like Respondent No. 2 to apprise the current status of development of Canal Network and if needed, to direct the Respondent



No. 2 to Notify the dates of termination of *Stage -I* and the commencement of *Stage -II*.

As per TEC of CEA (Page 351), the Firm Power in *Stage -II* of the Project is 125 MW with 1095 MU as the energy generation during 90% dependable year and hence the Design Energy of Project during *Stage-II* of Indira Sagar Project shall be 1095 MU as per CERC Norms.

Hon'ble CERC may take the above facts into cognizance and like to issue such order as deemed fit in the matter.

- 30) The Petitioner vide letter No. NHDC/1/Comm./44/10/1067 dated 07-05-2010 at the time of original submission of Petition No. 154/2010 on 10-05-2010, has already deposited requisite filing Fee of **Rs. 1,00,00,000/- (Rupees One Crore Only)** (i.e. Rs. 2000 x 1000 MW x 5 Years) vide Demand Draft vide No. **892225** dated **06-05-2010** (Page No. 124) issued by **State Bank of India, Main Branch, Bhopal** in favour of '**Assistant Secretary, Central Electricity Regulatory Commission**' payable at New Delhi in accordance with CERC notification No. L-7/142/157/2008-CERC dated 17-10-2008.

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PRAYER

1. Hon'ble CERC may determine and fix the tariff for the period **01-04-2009** to **31-03-2014** as per Para-26, subject to truing-up as per CERC Regulation '2009 and to allow NHDC to raise consequent arrear bills.
2. Hon'ble CERC may take the cognizance of Para – 28 [A] & 28 [B] and issue such order as deemed fit in the matter.
3. Hon'ble CERC may take the cognizance of facts pertaining to Stage-wise Design Energy of ISP as detailed at Para – 8 & 29 and issue such order as deemed fit in the matter.
4. Pass such order and further order/ orders, as are deemed fit and proper in the facts and circumstances of the case.

NHDCLtd.

Through



Name: **S. SANYAL**
Designation: **CHIEF ENGINEER**

Place: Bhopal
Date: 15-07-2010



Checklist of Forms and other information/ documents for tariff filing for for Hydro Stations

Form No.	Title of Tariff Filing Forms (Hydro)	Tick
FORM- 1	Summary Sheet	✓
FORM-2	Details of COD, Type of hydro station, Normative Annual Plant Availability Factor(NAPAF)	✓
FORM-3	Salient Features of Hydroelectric Project	✓
FORM-4	Details of Foreign loans	✓
FORM- 4 A	Details of Foreign Equity	✓
FORM-5	Abstract of Admitted Capital Cost for the existing Projects	✓
FORM-5A	Abstract of Capital Cost Estimates and Schedule of Commissioning for the New projects	✓
FORM-5B	Break up of capital Cost	✓
FORM-5C	Break up of Project Cost for Plant and Equipment	✓
FORM-5D	Break-up of Construction/Supply/Service packages	✓
FORM-6	Financial Package upto COD	✓
FORM-7	Details of Project Specific Loans	✓
FORM- 8	Details of Allocation of Corporate Loans to various projects	✓
FORM-9	Statement of Additional Capitalisation after COD	✓
FORM- 9 A	Statement of Capital cost	✓
FORM- 9B	Statement of Capital Woks in Progress	✓
FORM-10	Financing of Additional Capitalisation	✓
FORM-11	Calculation of Depreciation Rate	✓
FORM-12	Statement of Depreciation	✓
FORM-13	Calculation of weighted average rate of interest on actual loan	✓
FORM-13A	Calculation of interest on Normative loan	✓
FORM-13B	Calculation of Interest on Working Capital	✓
FORM-14	Draw Down Schedule for Calculation of IDC & Financing Charges.	✓
FORM- 14A	Actual cash expenditure	✓
FORM-15A	Calculation of Operation & Maintenance Expenses	✓
FORM-15B	Details of Operation & Maintenance Expenses	✓
FORM-16A	Design energy and peaking capability (monthwise)- ROR with Pondage/Storage type new stations	✓
FORM-16B	Design energy and MW Continuous (monthwise)- ROR type new stations	✓
Other Information/ Documents		
Sl. No.	Information/Document	Tick
1	Certificate of incorporation, Certificate for Commencing Business Memorandum of Association & Article of Association (for new station set up by a company making tariff application for the first time to CERC)	✓
2	Stationwise and Corporate audited Balance Sheet and Profit & Loss Accounts with all the Schedules & annexures on COD of the station and for the relevant years.	✓
3	Copies of relevant loan agreements	✓
4	Copies of the approval of Competent Authority for the Capital Cost and Financial package	✓
5	Copies of the Equity participation agreements and necessary approval for the foreign equity.	N.A.
6	Copies of the BPSA/ PPA with the beneficiaries, if any	✓
7	Detailed note giving reasons of time and cost over run, if applicable	N.A.
8	Any other relevant information (Please specify)	

INDIRA SAGAR PROJECT
WORKING SHEET - CALCULATION OF TARIFF

(For FY 2009-10 to FY 2013-14)

CAPITAL COST

(Rs. in Lakhs)

S. No.	Description	2009-10	2010-11	2011-12	2012-13	2013-14
1	Opening Power Component of Capital Cost	309579.93	310902.45	313970.73	316160.36	318323.88
2	Additional Capital Expenditure (Power Component)	1647.52	2728.28	405.63	1697.52	3790.00
3	Un-discharged liabilities at the beginning of the year	6204.00	6529.00	6189.00	4405.00	3939.00
4	Un-discharged liabilities at the ending of the year	6529.00	6189.00	4405.00	3939.00	4574.00
5	Un-discharged Liabilities Discharged	-325.00	340.00	1784.00	466.00	-635.00
6	Additional Capital Expenditure (Power Component) considered for Tariff calculation	1322.52	3068.28	2189.63	2163.52	3155.00
7	Closing Power Component of Capital Cost	310902.45	313970.73	316160.36	318323.88	321478.88

CALCULATION OF DEPRECIATION

(Rs. in Lakhs)

S. No.	Description	2009-10	2010-11	2011-12	2012-13	2013-14
1	Opening Power Component of Capital Cost	309579.93	310902.45	313970.73	316160.36	318323.88
2	Closing Power Component of Capital Cost	310902.45	313970.73	316160.36	318323.88	321478.88
3	Average Capital Cost (Power Component)	310241.19	312436.59	315065.55	317242.12	319901.38
4	Rate of Depreciation (refer Form - 11)	4.193%	4.185%	4.180%	4.181%	4.185%
5	Depreciable Value	279217.07	281192.93	283558.99	285517.91	287911.24
6	Cumulative Depreciation/ AAD upto previous FY	39983.80	52992.21	66067.68	79237.42	92501.31
7	Remaining Depreciable Value	239233.28	228200.72	217491.31	206280.49	195409.93
8	Depreciation	13008.41	13075.47	13169.74	13263.89	13387.87
	Depreciation =	13008.41	13075.47	13169.74	13263.89	13387.87