COMMENTS ON DRAFT CERC (TERMS AND CONDITIONS OF TARIFF) REGULATIONS, 2014

Agenda

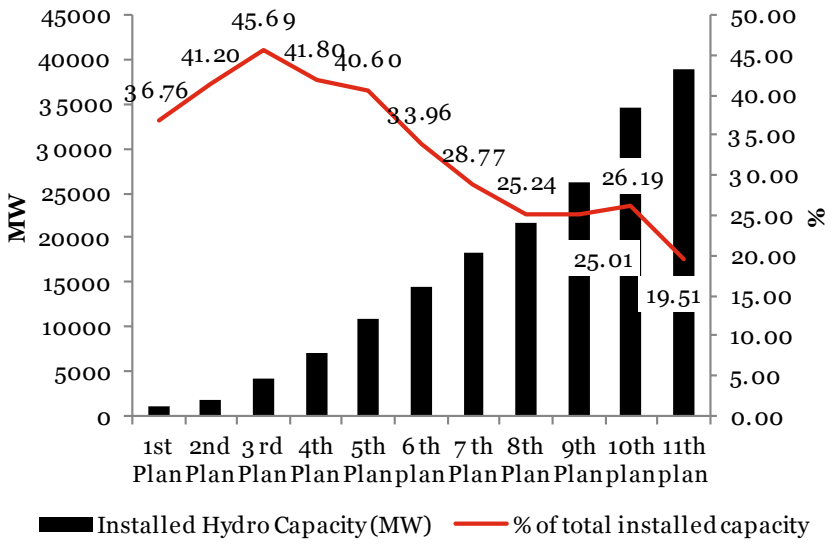
Declining interest & investment in hydro power sector

Only **26%**

Of the total hydro power potential of India has been harnessed

Only **17%**

Is the share of hydro generation in the total installed capacity against the ideal hydro-thermal mix of 40:60



Plan Period	Addition in Hydro capacity (MW)
2nd Plan	856
3rd Plan	2207
4th Plan	2842
5th Plan	3867
6th plan	3627
7th Plan	3847
8th Plan	3351
9th Plan	4611
10th plan	8384
11th plan	4337

Addition in hydro power capacity during 11th Plan was lower than even 10th plan!

Section 1
Salient issues relating to tariff for hydro power plants

1. Regulation 24, Tariff Regulations, 2014 – Return on Equity

Provision in the regulations

ROE for ROR type stations – 15.50%

ROE for storage type stations including pumped storage – 16.50%

Incentive of 0.50% for timely completion

No change vis-a-vis Tariff Regulations, 2009

- Same ROE (15.50%) is proposed for all generation/ transmission projects (except reservoir based hydro power projects)
- Due to the higher gestation period, effective rate of return from hydro power projects is lower than thermal/ transmission projects
- Hydro power projects face higher risk during project execution as compared to thermal/ transmission projects
- SBI PLR has increased from 11.75% at the start of 2009 to 14.45% as of now

Suggestion: ROE of at least 19.50% may be allowed to all type of hydro power projects alternatively ROE on construction period be allowed to bring at par with other power sector utility.

2. Regulation 3(49), 11 & 12, Tariff Regulations, 2014 – SCOD and IDC & IEDC

Provision in the regulations

SCOD is "date(s) of commercial operation of a generation project as indicated in the investment approval or as agreed in PPA"

Normally, IDC & IEDC shall be allowed only up to SCOD

Force Majeure events and Change in law considered uncontrollable

- CCEA approval does not specify COD but date of commissioning
- Treatment of only force majeure events and change in law conditions as uncontrollable factors impacting IDC & IEDC is not practical – delay in Land Acquisition, extra ordinary geological surprises, law & order problems, stoppage of work due to local unrest / employment issues, legal hurdles, inter-state dispute, international disputes are a few of the other uncontrollable factors that hamper development of hydro power projects

Suggestion: 1. Delay in Land Acquisition, extra ordinary geological surprises, law & order problems, stoppage of work due to local unrest / employment issues, legal hurdles, inter-state dispute, international disputes should be considered as uncontrollable factors.
2. Where the delay in commercial operation is on account of uncontrollable factors, the date(s) of commercial operation after taking into account delay on account of uncontrollable factors should be considered as SCOD

3. Regulation 29, Draft Tariff Regulations, 2014 – Operation and maintenance expenses

Provision in the regulations

Station wise O&M expenses have been specified; no such provision in Tariff Regulation, 2009

Base year O&M expenses arrived at considering **normalized** expenses during FY09-FY13

Fixed escalation rate of 6.35% for 2014-19 vs. 5.72% for 2004-09

- There are defficiencies in methodology followed for normalization of O&M expenses. Approx. 7% of total O&M expenses erroneously excluded during normalization.
- Escalation rate (6.35%) has been fixed below the avg. CPI & WPI inflation in previous years (8.35%) considering the increase in normalized expenses during FY09-FY13

This is against past regulatory practices and provisions of Tariff Policy.

- During previous tariff period (2009-14) there was significant variation b/w actual and approved inflation leading to significant loss to companies.

Provision for truing up of escalation rate should be introduced/ escalation factor should be made uncontrollable.

3. Regulation 29, Draft Tariff Regulations, 2014 – Operation and maintenance expenses

Provision in the regulations

O&M for new hydro plants irrespective of capacity/type - 2% of capital cost (same as 2009-14)

For NHPC, employee cost considered at 46% of total O&M expenses for calculating impact of wage revision

- Historical data shows that O&M expenses of new hydro stations vary with size/type of the station. NHPC proposes following norms for new stations in 2014-19:

Installed capacity	O&M expenses as % of capital cost
Less than 200 MW	4%
B/w 200 MW & 600 MW	3%
B/w 600 MW & 1200 MW	2%
More than 1200 MW	1.5%

- CERC approved employee cost at 62% of O&M expenses during current tariff period (2009-14) for calculating impact of wage revision. The actual was 74% during FY09-FY13.

The norm for employee cost (as a % of O&M expenses) for wage revision needs to be revised accordingly

Suggestion: The norms for O&M expenses should be revised based on the actual O&M expenses and escalation factor

4. Regulation 36, Draft Tariff Regulations, 2014 – Normative Annual Plant Availability Factor (NAPAF)

Provision in the regulations

NAPAF for 4 stations revised

Station	2009-14	2014-19
Bairasul	85%	90%
Uri	60%	70%
Rangit	85%	90%
Dhauliganga	85%	90%

No change in NAPAF of other stations

- Higher performance was achieved by incurring higher expenses on operation & maintenance than that approved by CERC

Expenses incurred/ incentive earned (FY10-FY13)	Bairasul	Rangit
Incentive on account of NAPAF (Rs Cr)	18.25	11.94
Extra O&M Expenses (Actual – Normative) Rs Cr	**59.93**	**51.12**

- Actual performance of the stations has not changed significantly b/w FY04-FY08 and FY09-FY13, but norm has been changed significantly
- Target for old plants of more than 30 years (like Bairasul) should not be same as new plants

Suggestion: NAPAF set for Bairasul, Uri, Rangit and Dhauliganga power stations for the current tariff period should be retained

4. Regulation 36, Draft Tariff Regulations, 2014 – Normative Annual Plant Availability Factor (NAPAF)

Other Comments

- CERC has set NAPAF for Loktak power station at 85%

  Loktak achieved PAF of 80.18% during last five years, however its NAPAF has been fixed at 85%. NAPAF of Loktak power station should be fixed at 80% after allowing a relaxation of 5% applicable to projects of North East region.

Suggestion: The target NAPAF for Loktak power station should be fixed at 80%.

5. Regulation 16 (2), Tariff Regulations, 2014 – Special Allowance for Coal-based/Lignite fired Thermal Generating station

Provision in the regulations

Coal/lignite stations may avail 'Special Allowance' for meeting expenses, including R&M, beyond useful life @ Rs. 7.5 lakh/MW/year for 2014-15, escalated @ 6.35% every year during the tariff period 2014-19

- The useful life of hydro power plants is 35 years. Older plants are affected by technological obsolescence, require R&M after useful life
- Two NHPC power stations viz. Bairasiul and Loktak are completing their useful life in tariff period i.e. 2014-19
- R&M of hydro generating stations is affected by lack of expertise with single agency to properly assess the extended life after studying residual life assessment (RLA) of various components of the generating stations
- As useful life of various components varies significantly in case of hydro stations, various R&M activities are being carried out in phased manner based on the actual condition/requirement.

Suggestion: The special allowance @7.50 lakh/MW/year with annual escalation should also be allowed for hydro generating stations

7. Regulation 31(7), Tariff Regulations, 2014 – Rate of secondary energy for Hydro Generating Stations

Provision in the regulations

Rate of sale of secondary energy has been increased from

80 paise/kWh to

90 paise/kWh

(which is approx. equal to the current variable charge for Korba thermal power station)

- Secondary energy needs to be priced on "replacement cost" basis
- Excess generation from hydro power is used to provide peaking power which is costly. Hydro power stations are mandated by several regulations including IEGC and CERC Tariff Regulations, 2009 to provide peaking power support
- It is proposed that rate of secondary energy should be linked to
  - Either with the average variable cost for pit head generating stations; or
  - Existing rate should be escalated @ 8.35% per annum for the 2009-14 period (Approx Rs 1.20 /kWh)

Section 2
Other comments

Other comments … 1

	Provision in Draft Tariff Regulations, 2014	Comments/ Suggestions
Trial Run and Trial Operation	***Regulation 4*** Date of commercial operation … in relation to the (hydro) generating station as a whole, the date declared by the generating company after demonstrating peaking capability corresponding to installed capacity of the generating station through a successful trial run ***Regulation 5 (1)*** Trial Run in relation to generating station or unit thereof shall mean the successful running of the generating station or unit thereof at maximum continuous rating or installed capacity for **continuous period of 72 hours**.	(a) Distinction should be made b/w definition of Trial Run in case of a hydro generating station and thermal generating station, as in the case of revised definition of commissioning issued by MoP. (b) Continuous running of station at MCR for 72 hours during trial run should not be made mandatory for hydro generators. Trial run for units of hydro projects should be limited to 12 hours and for hydro station 3 hours

Other comments … 2

	Draft tariff regulations 2014-19	Comments/ Suggestions
Interest on under recovery/ excess recovery of tariff after truing up of capital expenditure	Reg 7 (8) … where the capital cost … or the projected additional capital expenditure … **exceeds the actual capital** cost incurred on year to year basis **by more than 5%,** the generating company shall refund … the excess tariff recovered … along with **interest at 1.20 times of the bank rate**… Provided also that where the capital cost … or the projected additional capital expenditure … **falls short** of the actual capital cost incurred on year to year basis by **more than 5%,** the generating company … shall recover the shortfall in tariff … along with **interest at 0.80 times of bank rate**.	(a) The normal allowed deviation on year to year basis should be at least 25% from the allowed expenditure. Irrespective of the year to year deviation, overall deviation of up to 20% should be allowed over the period of 5 years. (b) Interest rate considered should be **same**.

Other comments … 3

	Provision in Draft Tariff Regulations, 2014	Comments/ Suggestions
Free Energy for Home State	***Regulation 42 (2) Note 3*** FEHS = Free energy for home State, in percent and shall be **taken as 12%.** Provided that in cases where the site of a hydro project is awarded to a developer, by following a two stage transparent process of bidding, the 'free energy' shall be taken as 13%, in addition to energy corresponding to 100 units of electricity to be provided free of cost every month to every PAF. Provided further that the generating company shall submit detail quantification of energy corresponding to 100 units of electricity to be provided free of cost every month to every month to every project affected family for a period of 10 years from the date of commercial operation.	The clause may be revised as under: Note 3: FEHS = "Free energy for home State, in percent and shall be taken as **12% or 13% as the case may be in allocation of power issued by ministry of power,** in addition to …" Distribution licensee of state should supply power or cash to PAF once it receives power from generating company. Distribution licensee should submit the detailed quantification of energy to RPC every month.

Other comments ... 4

	Provision in Draft Tariff Regulations, 2014	Comments/ Suggestions
Interest on Working Capital	***Regulation 28 (1)(c)*** The working capital shall cover for hydro generating station including pumped storage hydro electric generating station : (i) Receivables equivalent to two months of fixed cost (ii) Maintenance spares @ 15% of operation and maintenance; (iii) Operation and maintenance expenses for one month.	• The state of J&K is levying water usage charges • Bills of water usage charges are raised by J&K State Water Authority half yearly and are paid within 15 days • NHPC raises bills within the month for reimbursement from beneficiaries, which beneficiaries pay within 2 months • As water charges are not included in WC formula, NHPC is incurring a loss A fourth component should be introduced in the formula for WC **(iv) 2 months water usage charges, if applicable.**

Other comments … 5

	Provision in Draft Tariff Regulations, 2014	Comments/ Suggestions
Auxiliary Energy Consumption	***Regulation 37 (6)*** Auxiliary Energy Consumption (AUX): (a) Surface hydro generating stations (i) with rotating exciters mounted on the generator shaft : 0.7% **(ii) with static excitation system : 0.5%** (b) Underground hydro generating stations (i) with rotating exciters mounted on the generator shaft : 0.9% **(ii) with static excitation system : 1.0%**	**Aux of static excitation can never be lower than the rotating excitation system!** (a) Aux should be retained as per existing norms. (b) In case of Nimmo Bazgo and Chutak projects located in Laddakh region, requiring de-icing at barrage intake, requires heating in winter season, higher than normative aux (as per actuals) may be allowed.

Other comments … 6

	Provision in Draft Tariff Regulations, 2014	Comments/ Suggestions
Reduction in ROE on account of RGMO/FGMO	***Regulation 24*** The rate of return of new project shall be reduced by 1%, if the generating station or transmission system is declared commercial operation without commissioning of RGMO/FGMO, data telemetry and communication system up to load dispatch centre and protection system.	(a) Responsibility of the generating company and the transmission licensees should be clearly identified. (b) RGMO/FGMO is not related to COD of the generating stations. Enforcement of this clause shall result in unnecessary delay in commissioning. (c) Generating stations may be allowed certain duration after commissioning of the plant to complete RGMO/ FGMO works after which a suitable penalty, maximum upto 0.1% of ROE, may be considered.

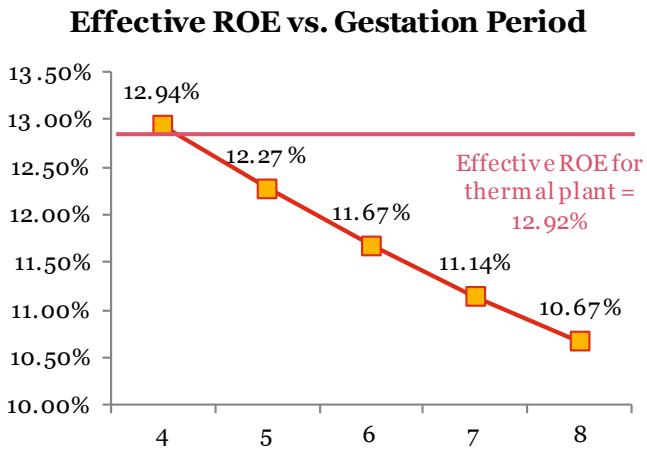
Appendix 1
Return on Equity

Appendix: Regulation 24, Tariff Regulations, 2014 – Return on Equity

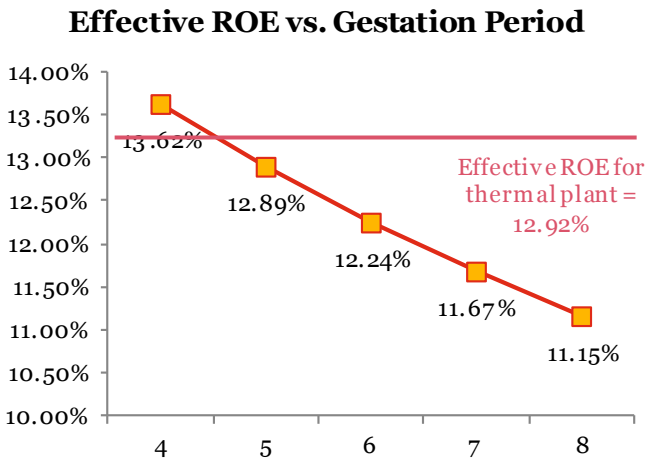
	Name of the Project & Capacity	Approved Completion schedule as per CEA / CCEA clearance (years)
1	Chamera-I (540 MW)	6.0
2	Chamera-II (300 MW)	5.0
3	Teesta-V (510 MW)	7.0
4	Uri (480 MW)	6.0
5	Rangit (60 MW)	5.0
6	Dhauliganga (280 MW)	7.5
7	Dulhasti (390 MW)	8.0
8	Chamera-III (231 MW)	5.0
9	Parbati -III (520 MW)	5.0
10	Parbati -II (800 MW)	7.0
11	Subansiri Lower (2000 MW)	7.0
12	Kishanganga (330 MW)	7.0

Appendix: Regulation 24, Tariff Regulations, 2014 – Return on Equity

Effective ROE (under IRR method) of Purely ROR Hydro Project vs. that of Thermal Project



Effective ROE (under IRR method) of Storage Hydro Project vs. that of Thermal Project

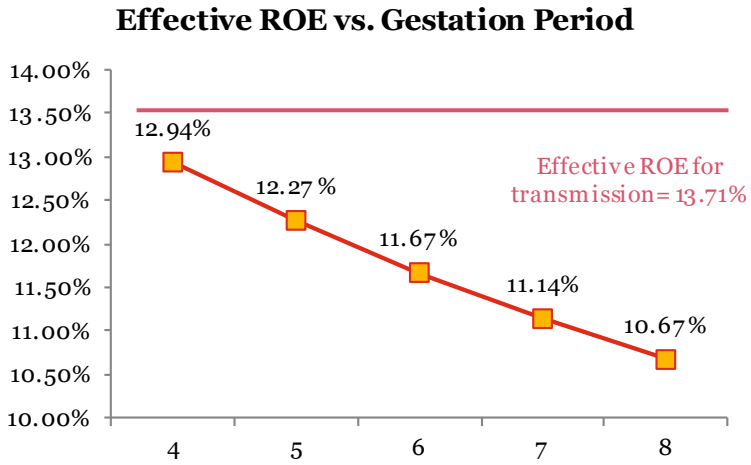


Statement of Required ROE for Hydro Project under different Scenarios of gestation periods to achieve the effective ROE of Thermal Project i.e.12.92%

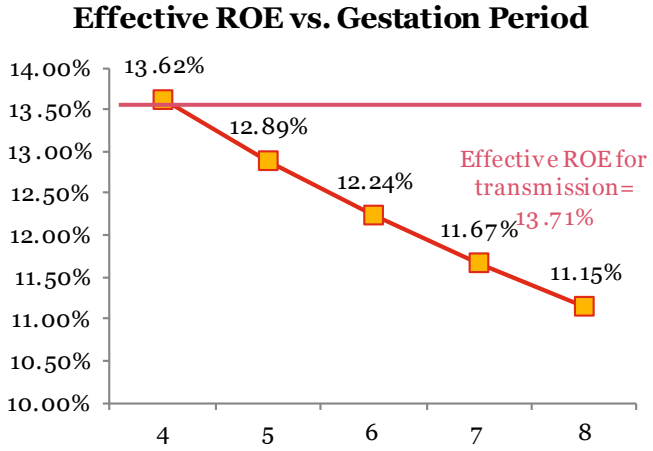
Project	Gestation period	ROE Required	Effective ROE	Differential Required ROE w.r.t. thermal
Thermal	4	15.50%	12.92%	0.00%
Hydro	4	15.48%	12.92%	-0.03%
Hydro	5	16.56%	12.92%	1.06%
Hydro	6	17.75%	12.92%	2.24%
Hydro	7	19.04%	12.92%	3.52%
Hydro	8	20.45%	12.92%	4.94%

Appendix: Regulation 24, Tariff Regulations, 2014 – Return on Equity

Effective ROE (under IRR method) of Purely ROR Hydro Project vs. that of Transmission Project



Effective ROE (under IRR method) of Storage Hydro Project vs. that of Transmission Project



Statement of Required ROE for Hydro Project under different Scenarios of gestation periods to achieve the effective ROE of Transmission Project i.e.12.92%

Project	Gestation period	ROE Required	Effective ROE	Differential Required ROE w.r.t. Transmission
Transmission	3	15.50%	13.71%	0.00%
Hydro	4	16.63%	13.71%	1.13%
Hydro	5	17.87%	13.71%	2.37%
Hydro	6	19.23%	13.71%	3.73%
Hydro	7	20.71%	13.71%	5.21%
Hydro	8	22.34%	13.71%	6.84%

Appendix 2
SCOD and IDC & IEDC

Appendix: Regulation 3(49), 11, & 12 Tariff Regulations, 2014 – SCOD and IDC & IEDC

Name	Parbati-III HE Project	Teesta Low Dam-IV	Parbati-II HE Project	Subansiri Lower HE Project	Kishanganga HE Project
Capacity (MW)	4 X130=520	4 X 40=160	4 X 200=800	8 x 250=2000	330
Schedule COD	Nov'10	Sept'09	Sept'09	Sept'10	Nov'16
Land Acquisition	✓	✓	✓	✓	
Technical Uncertainty	✓		✓	✓	
Natural Calamity	✓	✓	✓		
Local Unrest	✓	✓		✓	
Legal Hurdles	✓				
Accidents			✓		
Inter-state dispute				✓	
International disputes					✓
Current Status of project	Mar'14	Apr'15	July'18	June'18	_

Appendix 3
Operation and maintenance expenses

Appendix: Regulation 29, Draft Tariff Regulations, 2014 Operation and maintenance expenses

The expenses mentioned above (including prior period expenses, arrears, provisions, loss from store, incentives, ex-gratia, VRS, PLI and PRP) correspond to up to 6.73% of total O&M expenses incurred by NHPC. Disallowance of these expenses shall therefore lead to significant reduction in the base O&M expenses.

S. No.	Name of Power Station	Total actual O&M expenses during 2008-13 (Rs Cr)	Expenses not allowed (Rs Cr)	Expenses not allowed/total O&M expenses (%)
1	Bairasul	392.72	25.75	6.56%
2	Loktak	423.91	23.8	5.61%
3	Salal	352.53	35.06	9.95%
4	Chamera-I	605.38	86.48	14.28%
5	Rangit	209.36	11.06	5.28%
6	Chamera-II	375.49	28.84	7.68%
7	Dhauliganga	309.24	14.54	4.70%
8	Dulhasti	795.27	17.34	2.18%
9	Teesta-V	353.07	16.8	4.76%
10	Sewa-II	176.76	10.91	6.17%
11	Uri	344.71	12.92	3.75%
12	Salal	712.36	56.56	7.94%
TOTAL		**5,050.79**	**340.1**	**6.73%**

Appendix: Regulation 29, Draft Tariff Regulations, 2014 Operation and maintenance expenses

- Detailed break up of normalized O&M expenses of 2008-09 to 2012-13 has not been given in the Explanatory Memorandum. It appears that the normalization done by CERC is erroneous and not matching with the methodology described by CERC in explanatory memorandum.
- Expenses erroneously excluded by CERC
  - Prior period expenses
  - Ex-gratia
  - Expenses where increase is greater than 10% has limited instead of limit of 20%
  - Expenditure of capital in nature but not claimed/allowed under capital cost
  - Electricity charges
  - Performance related pay

Appendix 4
Normative Annual Plant Availability Factor (NAPAF)

Appendix: Regulation 36, Draft Tariff Regulations, 2014 Normative Annual Plant Availability Factor (NAPAF)

PAF for 4 power stations of NHPC (in %)

Station	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	Avg.
Bairasul	84.01	92.98	95.35	94.63	95.11	92.51	90.34	94.26	94.19	97.3	93.07
Uri	67.86	52.11	63.99	66.79	61.36	71.36	71.65	81.14	75.06	79.8	69.11
Rangit	87.27	91.95	93.99	62.58	87.54	89.72	90.55	91.28	92.24	93.1	88
Dhauliganga			98.32	77.57	92.9	89	91.57	90.75	92.68	92.6	90.68

Thank you!