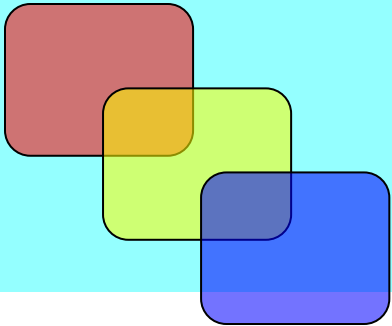




Comments from SJVN on Draft CERC(Terms and Conditions of Tariff) Regulations, 2014



for the period 2014-19



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Observations/Comments from SJVN

1) Normative Annual Plant Availability Factor(NAPAF)

- NAPAF increased by 8 % i.e. from 82% to 90% based on performance of NJHPS

Station	Type	Current Norm	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	Five Year Average
Power Station								
Dulhasti Power Station	Pondage	90%	95.08%	95.58%	91.54%	94.78%	83.89%	92.18%
Teesta- V Power Station	Pondage	85%	74.14%	92.94%	88.38%	86.44%	85.54%	85.49%
Sewa-II Power Station	Pondage	80%			81.14%	84.57%	81.10%	82.27%
Chamera -III Power Station	Pondage	85%					90.48%	90.48%
Indira Sagar	Pondage	85%	97.57%	89.49%	88.40%	90.41%	90.15%	91.20%
Omkareshwar	Pondage	90%	98.79%	99.83%	96.40%	97.58%	97.26%	97.97%
SJVN	Pondage	82%	96.08%	98.55%	98.32%	104.26%	105.15%	97.97%
THDC	Pondage	77%	80.61%	83.98%	74.41%	85.57%	81.99%	81.31%
Kopili Stg I	Storage	79%	87%	63%	68%	78%	63%	71.87%
DHEP	Storage	73%	97%	62%	77%	74%	66%	75.20%
RHEP	Pondage	85%	98%	95%	90%	94%	95%	94.48%
Khadong	Storage	69%	N/A	64%	61%	76%	74%	68.58%
Kopili Stg II	Storage	69%	N/A	61%	61%	74%	84%	70.26%

Observations/Comments from SJVN

1) Normative Annual Plant Availability Factor(NAPAF)

- Water enters into the Head race Tunnel of NJHPS through Satluj river, which carries **high silt content**. River Satluj originating from Mansarovar lake in high Himalayas carries considerable amount of silt during monsoon months with nearly **60 to 65% quartz contents** having angular & sub angular structure and hardness of **more than 7mho**.

Silt load passed through turbine					' Lacs of Ton'
Unit No.	2009-10	2010-11	2011-12	2012-13	2013-14(up to Nov, 2013)
Unit 1	7.37	11.74	7.55	7.62	15.61
Unit 2	6.92	11.36	7.66	7.85	15.83
Unit 3	7.61	10.32	7.78	7.93	16.21
Unit 4	7.13	11.39	7.85	7.99	15.94
Unit 5	7.55	10.12	7.9	8.04	15.66
Unit 6	7.62	10.59	7.82	7.93	15.63

Underwater components are coated with High Pressure High Velocity Oxy Fuel (HPHVOF) Tungsten Carbide coating to protect them from silt erosion.

Observations/Comments from SJVN

1) Normative Annual Plant Availability Factor(NAPAF)

Year wise shutdown due to High Silt							“No. in Days”			
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
May	-	-	1	-	-	-	-	-	-	-
June	-	6	1	-	2	-	2	-	-	5
July	1	24	13	-	1	-	5	4	-	1
August	8	17	17	11	1	2	17	-	4	1
Total	9	47	32	11	4	2	24	4	4	7

Shutdown due to high silt is unpredictable during the year and NJHPS was the 1st project on the River Satluj, who faced the fury of high silt and innovated the technical measures to handle the damage upto some extent by hard coating of under water parts and by increasing the inventory of under water parts to reduce the down time.

Observations/Comments from SJVN

1) Normative Annual Plant Availability Factor(NAPAF)

a) Due to High Silt:

- Erosion / damage to under water components and requires heavy Maintenance every year .
- Outage of Plant every year during high inflow season.
- Require routine Reservoir Flushing during high inflow season.
- Outage of Machine due to upstream KWHEP-Reservoir Flushing, Silt Flushing, DAM gate open.

Observations/Comments from SJVN

1) Normative Annual Plant Availability Factor(NAPAF)

- b) Tandem operation of RHEP with NJHPS, may leads to some outage in initial years in NJHPS.
- c) NJHPS supporting Northern Grid by providing Peaking power and thus utilize overload capacity in accordance with CEA(Technical Standards for connectivity to the Grid) Regulations, 2007, the Hydro generating unit shall be capable of generating up to 110 % of the rated capacity.
- d) On many occasions NRLDC directed NJHPS to adhere on the scheduled generation corresponding to Installed Capacity i.e. 1500 MW as per the requirement/ stability of Grid.
- e) To reduce machine down time, more underwater parts are purchased to support the grid.
- f) Additional capitalisation during 2007-09 for approx. Rs. 50 crore for NJHPS was not considered on account of Efficiency due to pending approval of RCE from MOP, GOI.
- g) Petition for 2009-14 is still under considerations with Hon'ble CERC. Energy billing is being made to the beneficiaries based on 2006-07 project cost till today i.e. 7990 Crore, where as actual value upto 31.03.2013 is 8868 crore

SILT FLUSHING CHAMBER EFFICIENCY (ACTUALLY OBSERVED)

Silt (PPM)	In Reservoir	Passing through Turbine	Efficiency required as per model studies	Efficiency of Desilting Chambers
Coarse	419	33	90%	92%
Medium	794	527	32%	33%
Fine	1804	1176	22%	34%
Overall			37%	42%

❖ In the Draft CERC Regulation 2014-19, Norms of operation for Hydro generating stations for Pondage type plants where plant availability is significantly affected by silt-85 %.

Request to consider the NAPAF as 85 % for high silt plant given in the Regulation for NJHPS.

Observations/Comments from SJVN

2) Operation and Maintenance Charges:

Lacs/MW

Generating Stations	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2012-13	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19
	Actual					Derived	Projected				
Rangit	58.60	55.13	68.37	59.06	66.21	69.11	77.77	82.71	87.97	93.55	99.49
Chamera - II	14.52	17.31	23.35	28.49	26.51	24.39	27.47	29.22	31.07	33.05	35.15
Dhauliganga	16.91	19.13	21.94	22.31	22.31	22.97	25.86	27.50	29.24	31.10	33.08
Dulhasti	15.99	28.24	30.10	35.52	36.38	31.29	35.26	37.50	39.88	42.41	45.11
Teesta- V	11.42	11.24	13.05	13.75	15.93	14.60	16.44	17.48	18.59	19.77	21.03
Sewa-II	-	-	35.71	54.84	49.19	49.17	55.43	58.95	62.69	66.67	70.91
KHEP	18.60	23.27	21.21	26.75	28.16	26.33	29.69	31.58	33.58	35.71	37.65
RHEP	10.34	10.92	13.22	14.21	17.47	14.70	16.58	17.63	18.75	19.94	21.03
DHEP	33.97	36.75	42.26	51.77	57.89	49.41	55.72	59.26	63.03	67.03	71.28
Khadong	Data not submitted considered for DHEP as both have same size turbines.						55.72	59.26	63.03	67.03	71.28
NHDC Stations											
Omkareshwar	5.52	5.69	8.99	9.62	10.71	8.96	10.10	10.74	11.42	12.15	12.92
Indira Sagar	5.46	6.73	7.72	6.66	7.38	13.13	14.81	15.75	16.75	17.82	18.95
SJVN	11.88	11.87	13.44	15.67	14.81	15.14	17.08	18.16	19.32	20.54	21.85
Tehri	13.47	12.87	20.61	17.56	19.45	18.73	21.12	22.46	23.88	25.40	27.01

Observations/Comments from SJVN

2) Operation and Maintenance Charges:

- a) Due to High Silt content -To reduce machine down time, more underwater parts were purchased to support the grid.
- b) Benefit of Machine availability as well as higher generation was passed on to the beneficiaries on year on year basis as well as support to the grid to reduce the Energy/ peak deficit.

Performance of NJHPS due to Spare under water Components	
Financial Year	Total Average No. of maintenance Days
2005-06	72
2006-07	54
2007-08	33
2008-09	14
2009-10	11
2010-11	8
2011-12	7
2012-13	9

Observations/Comments from SJVN

2) Operation and Maintenance Charges:

- c) The additional capitalisation during 2004-09 approx. Rs. 50 crore was not considered on account of Efficiency due to pending approval of RCE from MOP, GOI. Energy billing is being made to the beneficiaries based on 2006-07 project cost till today.
- d) NJHPS Petition for 2009-14 is still under consideration with Hon'ble CERC. Further, Amount filed in the petition under efficiency is given as under.
- e) SJVN may consider cost of them under O&M charges, if not considered under Additional capitalisation.

Additional Expenditure which has become necessary for efficient operation of plant		(In Cr.)
Financial Year	Under Regulation 9(2)(iv)	
2009-10	52	
2010-11	51	
2011-12	53	
2012-13	15	
Total	171	

Observations/Comments from SJVN

2) Operation and Maintenance Charges:

f) Insurance cost is increased many fold times due to the Uttarakhand disaster as well as down time of NJHPS machine due to Flash Flood, Lake Formation at upstream of Project & Flooding of Power house.

Policy Year	Premium paid (Rs. in Crore)
2009-10	14.39
2010-11	21.89
2011-12	22.32
2012-13	28.03

Observations/Comments from SJVN

2) Operation and Maintenance Charges:

- g) As per DPE guidelines, Pension scheme is applicable to all CPSE from 01.01.2007. This scheme has been approved in SJVN recently , however, employer contribution is still not finalised. This will enhance the O&M cost also.
- h) Presently, RHEP is under Erection and Commissioning stage and its 1st Unit is likely to be commissioned by end of February, 2014. As per the financial Accounting, corporate Expenses is distributed among the Construction project as well as project under O&M stage. Therefore, after commissioning of the RHEP, total Corporate Expenses will be booked against RHEP and NJHPS . This will result into increase of O&M cost of NJHPS.

Keeping in view of above, **may please consider last approved cost in 2009-14 as base for 2014-15**

Observations/Comments from SJVN

3) Auxiliary Energy Consumption

Stations	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	Current Norm	Five Year Average
Station							
Chamera - II Power Station	0.36%	0.38%	0.28%	0.29%	0.29%	1.20%	0.32%
Dhauliganga Power Station	1.22%	1.20%	1.19%	1.19%	1.19%	1.20%	1.20%
Dulhasti Power Station	0.98%	1.01%	0.97%	0.95%	1.04%	1.20%	0.99%
Teesta- V Power Station	0.32%	0.25%	0.22%	0.22%	0.22%	1.20%	0.25%
Sewa-II Power Station	NA		0.99%	1.38%	1.40%	1.00%	1.26%
Chamera -III Power Station	NA				0.91%	1.20%	0.91%
Chutak Power Station	NA				0.13%	1.20%	0.13%
Indira Sagar	0.58%	0.48%	0.46%	0.36%	0.39%	1.00%	0.45%
Omkareshwar	0.49%	0.57%	0.56%	0.47%	0.49%	1.00%	0.51%
SJVN	0.92%	0.88%	0.88%	0.90%	0.73%	1.20%	0.51%
THDC	1.20%	1.20%	0.61%	0.53%	0.37%	1.20%	0.78%
DHEP	N/A	0.12%	0.29%	0.20%	0.20%	1.00%	0.20%
RHEP	N/A	0.26%	0.35%	0.41%	0.36%	1.00%	0.35%

Observations/Comments from SJVN

3) Auxiliary Energy Consumption

- Figures given for NJHPS is not correct as mentioned in the draft Regulation. This will be 0.85 % in place of 0.51 %.
- Data given for Auxiliary Energy Consumption is excluding auxiliary consumption required at Dam site of NJHPS viz Power taken from state Govt., DAM (Intake Gate, Disilting Chamber, Sholding Complex side, Adits, etc.). Lighting Load at DAM side is also considerable. This Auxiliary consumption is approx. 0.3 to 0.4 %.

In view of above, Please consider same Auxiliary energy Consumption as given in 2009-14 for 2014-19

Observations/Comments from SJVN

4) Initial Spare

In Earlier Regulation, 1.5 % of the project cost as initial spare was considered. However, in Draft regulation 4 % of Plant and Machinery Cost is considered.

- In Hydro Stations, Plant & machinery Cost is approx. 20 to 25 % of the total Project cost. Therefore, considering 4 % will be approx. 0.8 to 1.0 %.
- Due to High Silt in river Satluj, more underwater components were procured to reduce down time as well as to support the Grid. Further in RHEP mandatory spares were procured amounting to 17 % approx. cost of the Electro-Mechanical package.
- Hard Coating plant was established for underwater components to reduce down time as well as to reduce its deformation from High Silt.
- During operation, more underwater components were procured under additional capitalisation for efficient operation of plant. However, same has not been considered till date in the filed petition during 2004-09 & 2009-14. Where as beneficiaries are getting advantage of these spares in terms of availability of Machine.

Initial Capital Spare same as 1.5 % of project capital cost as per 2009-14 Regulation may please be considered.

Observations/Comments from SJVN

5) Schedule Commercial Operation date(SCOD)

Date as indicated in the investment approval or as agreed in PPA or Transmission Service Agreement , whichever is earlier.

- Due to Geological surprises and various other reasons beyond the control of generator in the Hydro projects leads to time extension for completion of the project as scheduled.

Please consider SCOD, as date of commercial operation as defined in Regulation 4 of Draft 2014-19 Regulation.

Observations/Comments from SJVN

6) Tax Liability

- Tax on the income streams of the generating company from its core business, may be computed as an expense and shall be recovered from the beneficiaries after grossing up of same as was allowed for 2004-09 .
- Any under-recoveries or over-recoveries of tax on income shall be adjusted on year to year basis of income-tax assessment under the Income-Tax Act, 1961, as certified by the statutory auditors.
- The benefits of tax-holiday as applicable in accordance with the provisions of the Income-Tax Act, 1961 shall be passed on to the beneficiaries.

It is therefore requested to consider the same as Tax Liability given in 2004-09 Tariff Regulation for 2014-19.

Observations/Comments from SJVN

7) ROR with Pondage/ROR

- SJVN one of the Project i.e. RHEP is a tail race extension of NJHPS and shall be operated in tandem with upstream project NJHPS.
- The discharge released from Jhakri power house are to be utilized by RHEP in steady state running conditions avoiding any spilling of water at Jhakri.
- RHEP unit shall be tripped as soon as tripping of NJHPS unit is detected to avoid air entry into HRT of RHEP. Thus units of RHEP cannot be operative, when NJHPS is under shut down due to Forced Outage, Planned Outage and Miscellaneous Outage.
- Peaking of NJHPS will be the peaking for RHEP.

Please consider one more category of Hydro station i.e. “Pondage ROR with tandem” and NAPAF of such hydro generating stations may be fixed accordingly.

Observations/Comments from SJVN

8) Return On Equity

- **Provided further that 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.**

RHEP (412 MW) is being commissioned shortly. This will be the first project of this much capacity in a country, which is to operate in tandem with its upstream project NJHPS as its tail race extension. NJHPS is running in FGMO mode and RHEP would run according to the generation flow of NJHPS with some time delay as it can not run stand-alone basis. Therefore, it may require more deliberation during its tandem operation with NJHPS in FGMO.

Please provide relief to such stations operating in tandem with upstream project from RGMO/FGMO.

Observations/Comments from SJVN

9) Debt-Equity ratio

the generating company shall submit the resolution of the Board of the company for infusion of Fund from internal sources in respect of utilisation being made to meet the capital expenditure of the generating station.

This means, Approval given by the Board of Generating Company shall be considered even if Board of the Generating Company is not authorised to do so.



**SJVN GOING
GLOBAL**

THANK YOU



We need electricity for all these services and for lot more- we are trying to generate a little extra