पंजीकृत संख्या–यू0ए0/डी0एन0–30/03
(लाइसेन्स टू पोस्ट विदाउट प्रीपेमेन्ट)

सरकारी गजट, उत्तरांचल

उत्तरांचल सरकार द्वारा प्रकाशित

रुड़की, शनिवार, दिनांक 09 अक्टूबर, 2004 ई0 (आश्विन 17, 1926 शक सम्वत्)

भाग 1–क

नियम, कार्य–विधियां, आज्ञाएं, विज्ञप्तियां इत्यादि जिनको उत्तरांचल के राज्यपाल महोदय, विभिन्न विभागों के अध्यक्ष तथा राजस्व परिषद् ने जारी किया

Uttaranchal Electricity Regulatory Commission

80, Vasant Vihar, Phase-I, Dehradun--248001

NOTIFICATION

August 25, 2004

No. F-9(7)/RG/UERC/2004/532--In exercise of powers conferred under section 181 of the Electricity Act, 2003, and all other powers enabling it in this behalf, and after previous publication, the Uttaranchal Electricity Regulatory Commission hereby makes the following regulations, namely.

CHAPTER 1--PRELIMINARY

1. Short Title, Commencement and Interpretation

(1) These Regulations may be called the Uttaranchal Electricity Regulatory Commission (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2004.

(2) These Regulations extend to the whole of the State of Uttaranchal.

(3) These shall come into force from 01-04-2004 and unless reviewed earlier or extended by the Commission, shall remain in force for a period of 5 years.

2. Scope and Extent of Application

(1) Where tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government, the Commission shall adopt such tariff in accordance with the provisions of the Electricity Act, 2003.

(2) These regulations shall apply in all other cases where tariff for transmission licensees in Uttaranchal is to be determined by the Commission based on capital cost.

3. Definitions

(1) 'Act' means the Electricity Act, 2003 (36 of 2003).

(2) 'Additional Capitalisation' means the capital expenditure actually incurred after the date of commercial operation of the transmission system and admitted by the Commission after prudence check.

(3) 'Allotted Transmission Capacity' means the power transfer in MW between the specified point(s) of injection and point(s) of drawal allowed to beneficiaries on the intra-state transmission system under the normal circumstances and the expression "allotment of transmission capacity" shall be construed accordingly.

Allotted Transmission Capacity to a beneficiary shall be sum of the generating capacities allocated to the beneficiary from the State/Central Generating Stations and the contracted power, if any.

(4) 'Authority' means Central Electricity Authority referred to in section 70 of the Electricity Act, 2003.

(5) 'Availability' in relation to a transmission system for a given period means the time in hours during that period the transmission system is capable to transmit electricity at its rated voltage and shall be expressed in percentage of total hours in the given period and shall be calculated as per the procedure contained in Appendix–II to these regulations.

(6) 'Beneficiary' means the person who has availed of the transmission system on payment of transmission charges.

(7) 'Commission' means Uttaranchal Electricity Regulatory Commission.

(8) 'Core business' means the regulated activities of transmission of electricity and does not include any other business or activities of the transmission licensee like consultancy, telecommunication, etc.

(9) 'Contracted Power' means the power in MW which the transmission licensee has agreed to carry or which the transmission licensee is required to carry as per allocation/agreement between the importing and exporting utility.

(10) 'Cut off Date' means the date after one year of the date of commercial operation of the transmission system.

(11) 'Date of Commercial Operation or COD' means the date of charging the transmission system to its rated voltage level or seven days after the date on which it is declared ready for charging by the transmission licensee, but is not able to charge for reasons not attributable to the transmission licensee, its suppliers or contractors :

Provided that the date of commercial operation shall not be a date prior to the scheduled date of commercial operation mentioned in the implementation agreement or the transmission service agreement or the investment approval, as the case may be, unless mutually agreed to by all parties.

(12) 'Existing Project' means the project declared under commercial operation from a date prior to 1-4-2004.

(13) 'Implementation Agreement' means the agreement, contract or memorandum of understanding, or any such convenant, entered into between the transmission licensees and the beneficiaries for the construction of the project.

(14) 'Operation and Maintenance Expenses or O & M Expenses' means the expenditure incurred in operation and maintenance of the transmission system or part thereof including the expenditure on manpower, repairs, spares, consumables, insurance and other overheads.

(15) 'Original Project Cost' means the actual expenditure incurred by the transmission licensee, as per the original scope of project up to first financial year closing after one year of the date of commercial operation of the last element as admitted by the Commission for the purpose of tariff.

(16) 'Project' includes a transmission system comprising specified transmission lines, sub-stations and associated equipment.

(17) 'Rated Voltage' means the manufacturer's design voltage at which the transmission system is designed to operate or such lower voltage at which the line is charged, for the time being, in consultation with the beneficiary.

(18) 'Transmission Service Agreement' means the agreement, contract, memorandum of understanding, or any such covenant, entered into between the transmission licensee and the beneficiary of the transmission service for the operational phase of the project.

(19) 'Transmission licensee' means a person granted licence for transmission of electricity in the State of Uttaranchal and includes any person deemed to be a transmission licensee for transmission of electricity.

(20) 'Transmission System' means a line with associated sub-stations or a group of lines interconnected together alongwith associated sub-stations and the term includes equipment associated with transmission lines and sub-stations.

(21) 'State Government' means the Government of Uttaranchal.

(22) 'Year' means a financial year.

(23) Words or expressions used in these regulations and not defined herein but defined in the Electricity Act, 2003 shall have the meaning assigned to them under the Electricity Act, 2003.

CHAPTER 2--GENERAL TERMS AND CONDITIONS FOR DETERMINATION OF TRANSMISSION TARIFF

4. Filing of Expected Revenue & Cost of Services and Application for Determination of Tariff

(1) The transmission licensee may make an application for fixation of tariff in respect of the completed lines or sub-stations of the transmission system in such formats and alongwith such information which the Commission may require from time to time.

(2) In case of a transmission system declared under commercial operation on or after 1.4.2004, an application for fixation of tariff shall be made in two stages, namely :

(a) A transmission licensee may make an application for determination of provisional tariff in advance of the anticipated date of completion of project based on the capital expenditure actually incurred up to the date of making the application or a date prior to making of the application, duly audited and certified by the statutory auditors and the provisional tariff shall be charged from the date of commercial operation of the respective line or sub-station of the transmission system.

(b) A transmission licensee shall make a fresh application for determination of final tariff based on actual capital expenditure incurred up to the date of commercial operation of the transmission system, duly certified by the statutory auditors based on annual audited accounts.

(3) The transmission licensee shall file with application for determination of tariff duly validated projected annual data for as many years for which it wants the tariff to be fixed but not exceeding 5 years.

5. Tariff Determination

(1) The tariff for the transmission system shall be determined line-wise, sub-station-wise and system-wise, as the case may be, and aggregated to State tariff.

(2) For the purpose of tariff, the capital cost of the project shall be broken up into stages and by distinct units forming part of the project. Where break-up of the project cost is not available and in case of on-going projects, the common facilities shall be apportioned on the basis of the installed capacity of lines or sub-stations.

6. Norms of Operation to be Ceiling Norms

For removal of doubts, it is clarified that the norms of operations specified herein are the ceiling norms and this shall not preclude the Commission from stipulating or the transmission licensee and the beneficiaries from agreeing to improved norms of operation and in that case such improved norms shall be applicable for determination of tariff.

7. Tax on Income

(1) Tax on the income streams of the transmission licensee from its core business shall be computed as an expense and shall be recovered from the beneficiaries.

(2) Any under-recoveries or over-recoveries of tax on income shall be adjusted every year on the basis of income tax assessment under the Income Tax Act, 1961 as certified by the statutory Auditors :

Provided that tax on any income stream other than the core business shall not constitute a pass through component in the tariff and tax on such other income shall be payable by the transmission licensee :

Provided further that the profit before tax as estimated for any year in advance shall constitute the basis for distribution of the corporate tax liability to the beneficiaries :

Provided further that 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 :

Provided further that in the absence of any other equitable basis the credit for carry forward losses and unabsorbed depreciation shall be given in the roportion as provided in the second proviso to this regulation :

Provided further that the tax shall be charged to the beneficiaries in the same proportion as Annual Transmission Charges.

8. Cess/Duty/Royalty/Tax imposed by State Government

Any cess or duty or royalty or tax imposed by the State Government shall be allowed to be pass through to the beneficiary (ies) in proportion of their allotted capacity or quantity of energy delivered, as the case may be.

9. Escrow Mechanism

(1) The beneficiaries shall maintain an interest bearing escrow account separately for Income Tax, cess, royalty or any other duty which may be allowed as pass through, in a scheduled bank. All amounts of interest earned in the said account shall also be credited to that account.

(2) The liability for income tax shall be estimated two months before the commencement of each year and intimated to the beneficiaries. The liability for cess, royalty or duty etc. shall be intimated alongwith the monthly bill for transmission charges. Further, the liability for payment of advance income tax shall be estimated one month before the last date for payment of such tax and intimated to the beneficiaries alongwith its last date of payment. The transmission licensee shall endeavour to minimize its liability on account of taxes/cess/duties/ royalty etc. recoverable from the beneficiaries.

(3) The beneficiaries shall make payments in the escrow account for cess/royalty/duty, as the case may be, by the last date for payment of monthly bill for transmission charges. For income tax, payments into the income tax escrow account shall be made at least 15 days before the last date for payment of advance income tax intimated by the transmission licensee. In case of any penal charges payable to the concerned authority because of delay in payments, the same shall be borne by the party (ies) responsible for delay.

(4) The transmission licensee shall be authorised to withdraw the amounts for settling the tax/cess/duty/ royalty liability on presentation to the escrow holder of a certificate from its statutory auditors that the amounts are immediately due and payable to the concerned authority.

(5) The transmission licensee shall pay into the tax/cess/duty/royalty escrow account any refund received from the concerned authority.

(6) The refunds, if any, shall not be paid back to the beneficiaries and shall be adjusted in the escrow account. Any balance due or returnable shall be rolled over to the next year.

(7) The Escrow Accounts shall be reflected in the books of the beneficiaries as their bank account.

10. Extra Rupee Liability

Extra rupee liability towards interest payment and loan repayment in the relevant year shall be permissible; provided it directly arises out of foreign exchange rate variation and is not attributable to the transmission licensee or its suppliers or contractors. Every transmission licensee shall recover Foreign Exchange Rate Variation on a year to year basis as income or expense in the period in which it arises and Foreign Exchange Rate Variation shall be adjusted on a year to year basis.

11. Recovery of Income Tax/Cess/Royalty/Duty etc. and Foreign Exchange Rate Variation

Recovery of Income Tax/Cess/Royalty/Duty etc. and Foreign Exchange Rate Variation shall be done directly by the transmission licensee from the beneficiaries without making any application before the Commission :

Provided that in case of any objection by the beneficiaries to the amounts claimed on account of Income Tax/Cess/Royalty/Duty etc. and Foreign Exchange Rate Variation, the transmission licensee may make an appropriate Application before the Commission for its decision.

CHAPTER 3--NORMS OF OPERATION

12. Auxiliary Energy Consumption in the Sub-station

The charges for auxiliary energy consumption in the sub-station for the purpose of airconditioning, lighting, technical consumption, etc. upto the limit agreed in advance between the transmission licensee and the beneficiaries shall be borne by beneficiaries. Any charges for auxiliary consumption beyond this limit shall be borne by the transmission licensee and shall not be allowed to be pass through.

13. Target Availability for Recovery of Full Transmission Charges

(1) AC System	...	98%
(2) HVDC bi-pole links and HVDC back-to-back stations	...	95%

Notes

(a) Recovery of fixed charges below the level of target availability shall be on *pro-rata* basis. At zero availability, no transmission charges shall be payable.

(b) The target availability shall be calculated in accordance with procedure specified in Appedix II.

14. Capital Cost

(1) Only such capital expenditure as is incurred or proposed to be incurred with the approval of the Commission, including that exempted from prior approval, as per the procedure specified in Uttaranchal Electricity Regulatory Commission (Conduct of Business) Regulations, 2004 shall be considered for tariff purposes.

(2) The final tariff shall be fixed based on the admitted capital expenditure of the transmission system and shall include capitalised initial spares subject to a ceiling norm as a percentage of plant and equipment cost of 1.5% :

Provided that where the implementation agreement or transmission service agreement entered into between the transmission licensee and the beneficiaries provides a ceiling of actual expenditure, the capital expenditure shall not exceed such ceiling for determination of tariff.

Note

The scrutiny of the project cost estimates by the Commission shall be limited to the reasonableness of the capital cost, financing plan, interest during construction, use of efficient technology and such other matters for the purposes of determination of tariff.

15. Additional Capitalisation

(1) The following capital expenditure within the original scope of work actually incurred after the date of commercial operation and upto the cut off date may be admitted by the Commission subject to prudence check:

(a) Deferred liabilities,

(b) Works deferred for executiion,

(c) Procurement of initial capital spares in the original scope of works subject to the ceiling norm of 1.5% of the original project cost.

(d) Liabilities to meet award of arbitration or compliance of the order or decree of a court, and

(e) On account of change in law.

Provided that original scope of works along with estimates of expenditure shall be submitted alongwith the application for provisional tariff :

Provided further that a list of the deferred liabilities and works deferred for execution shall be submitted alongwith the application for final tariff after the date of commercial operation of transmission system.

(2) Subject to provisions of sub-regulation (3) of this regulation, the capital expenditure of the following nature actually incurred after the cut-off date may be admitted by the Commission, subject to prudence check :

(a) Deferred liabilities relating to works/services within the original scope of work,

(b) Liabilities to meet award of arbitration or compliance of the order or decree of a court,

(c) On account of change in law, and

(d) Any additional works/service which have become necessary for efficient and successful operation of the project but not included in the original project cost.

(3) Any expenditure on minor items/assets brought after the cut off date like tools and tackles, personal computers, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, fans, T.V., washing machine, heat-convectors, mattresses, carpets, etc. shall not be considered for additional capitalisation for determination of tariff with effect from 1.4.2004.

Note

The list of items is illustrative and not exhaustive.

(4) Impact of additional capitalisation in tariff revision may be considered by the Commission twice in a tariff period including revision in tariff after the cut off date.

(5) Debt Equity Ratio :

(a) In case of all projects, debt-equity ratio as on the date of commercial operation shall be 70:30 for determination of tariff. Where equity employed is more than 30%, the amount of equity for the purpose of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan :

Provided that in case of the projects where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff.

(b) The debt and equity amounts arrived at in accordance with clause (a) shall be used for calculating interest on loan, return on equity, Advance Against Depreciation and Foreign Exchange Rate Variation.

Note 1

Any expenditure admitted on account of committed liabilities within the original scope of work and the expenditure deferred on techno-economic grounds but falling within the original scope of work shall be serviced in the normative debt-equity ratio arrived at in the manner indicated above.

Note 2

Any expenditure on replacement of old assets shall be considered after writing off the entire valve of the original assets from the original capital cost.

Note 3

Any expenditure admitted by the Commission for determination of tariff on account of new works not in the original scope of work shall be serviced in the normative debt-equity ratio specified above.

Note 4

Any expenditure admitted by the Commission for determination of tariff on renovation and modernization and life extension shall be serviced on normative debt-equity ratio specified above after writing off the original amount of the replaced assets from the original capital cost.

CHAPTER 4--COMPUTATION OF TRANSMISSION CHARGES

16. Transmission Charges

(1) The tariff for transmission of electricity on intra-state transmission system shall comprise of the recovery of annual transmission charges (ATC) consisting of :

(a) Interest on Loan Capital.

(b) Depreciation including Advance against depreciation.

(c) Return on equity.

(d) Operation & Maintenance expenses.

(e) Interest on working capital.

(2) Income, other than that through charges permitted by the Commission, and involving utilisation of the transmission licensee's assets may be suitably accounted for by the Commission while determining the tariff.

17. Interest on Loan Capital

(1) Interest on loan capital shall be computed loan-wise including on the loans arrived at in the manner indicated in regulation 15(5).

(2) The loan outstanding as on 1.4.2004 shall be worked out as the gross loan as per sub-regulation (1) above minus cumulative repayment as admitted by the Commission up to 31.3.2004. Future repayments shall be worked out on normative basis.

(3) The transmission licensee shall make every effort to swap the loan as long as it results in net benefit to the beneficiaries. The costs associated with such swapping shall be borne by the beneficiaries.

(4) The changes to the loan terms and conditions shall be reflected from the date of such swapping and benefit passed on to the beneficiaries.

(5) In case of any dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold any payment as ordered by the Commission to the transmission licensee during pendency of any dispute relating to swapping of loan.

(6) In case any moratorium period is availed of by the transmission licensee, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and the interest on loan capital shall be calculated accordingly.

(7) The transmission licensee shall not make any profit on account of swapping of loan and interest on loan.

18. Depreciation

(1) For the purpose of tariff, depreciation shall be computed in the following manner, namely :

(a) The value base for the purpose of depreciation shall be the historical cost, excluding capital subsidy/grant, of the asset capitalised.

(b) Depreciation shall be calculated annually based on straight line method over the useful life of the asset and at the rates prescribed in Appendix I to these regulations.

The residual life of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded from the capital cost while computing 90% of the historical cost of the asset. The historical capital cost of the asset shall include additional capitalisation on account of Foreign Exchange Rate Variation up to 31.3.2004 already allowed by the Central or State Government/Commission.

(c) Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on *pro-rata* basis.

19. Advance Against Depreciation (AAD)

(1) In addition to allowable depreciation, the transmission licensee shall be entitled to an advance against depreciation, computed in the manner given hereunder.

AAD = Loan repayment amount as per regulation 17 subject to a ceiling of 1/10th of loan amount as per regulation 15(5) minus depreciation as per schedule :

Provided that Advance Against Depreciation shall be permitted only if the cumulative repayment up to a particular year exceeds the cumulative depreciation up to that year :

Provided further that Advance Against Depreciation in a year shall be restricted to the extent of difference between cumulative repayment and cumulative depreciation up to that year.

(2) On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.

20. Return on Equity

(1) Return on equity shall be computed on the equity base determined in accordance with regulation 15(5) and shall be @ 14% per annum :

Provided that equity invested in foreign currency shall be allowed a return upto the prescribed limit in the same currency and the payment on this account shall be made in Indian Rupees based on the exchange rate prevailing on the due date of billing.

Explanation :

The premium raised by the transmission licensee while issuing share capital and investment of internal resources created out of free reserve, if any, for the funding of the project, shall also be reckoned as paid up capital for the purpose of computing return on equity, provided such share capital, premium amount and internal resources are actually utilised for meeting the capital expenditure of the transmission system and forms part of the approved financial package.

21. Operation and Maintenance Expenses

(1) For projects more than 5 years age :

(a) The operation and maintenance expenses including insurance, for the existing projects which have been in operation for 5 years or more in the base year of 2003-04, shall be derived on the basis of actual operation and maintenance expenses for the years 1998-99 to 2002-03, based on the audited balance sheets, excluding abnormal operation and maintenance expenses, if any, after prudence check by the Commission.

(b) The average of such normalised operation and maintenance expenses after prudence check, for the years 1998-99 to 2002-03 considered as operation and maintenance expenses for the year 2000-01 shall be escalated at the rate of 4% per annum to arrive at operation and maintenance expenses for the base year 2003-04.

(c) The base operation and maintenance expenses for the year 2003-04 shall be escalated further at the rate of 4% per annum to arrive at permissible operation and maintenance expenses for the relevant year of tariff period.

(2) For projects less than 5 years age :

(a) In case of the projects, which have not been in existence for a period of five years, the operation and maintenance expenses shall be fixed at 1.5% of the capital cost as admitted by the Commission and shall be escalated at the rate of 4% per annum from the subsequent year to arrive at operation and maintenance expenses for the base year 2003-04. The base operation and maintenance expenses shall be further escalated at the rate of 4% per annum to arrive at permissible operation and maintenance expenses for the relevant year.

(b) In case of the projects declared under commercial operation on or after 1.4.2004, the base operation and maintenance expenses shall be fixed at 1.5% of the actual capital cost as admitted by the Commission, in the year of commissioning and shall be subject to an annual escalation of 4% per annum for the subsequent years.

22. Interest on Working Capital

(1) Working Capital shall cover :

(a) Operation and Maintenance expenses for one month;

(b) Maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation (in case of PTCUL's transmission system transferred from UPPCL, historical cost shall be the cost as on the date of unbundling of UPSEB to be escalated @ 6% p.a. thereafter); and

(c) Receivables equivalent to two months of transmission charges calculated on target availability level.

(2) Rate of interest on working capital shall be on normative basis and shall be equal to the shortterm Prime Lending Rate of State Bank of India as on 1.4.2004 or on 1st April of the year in which the project or part thereof, as the case may be, is declared under commercial operation, whichever is later. The interest on working capital shall be payable on normative basis notwithstanding that the transmission licensee has not taken working capital loan from any outside agency.

23. Payment of Transmission Charges

Full annual transmission charges shall be recoverable at the target availability stipulated in regulation 13. Payment of transmission charge below the transmission availability shall be on *pro-rata* basis. The transmission charge shall be calculated on monthly basis.

24. Sharing of Transmission Charges

In case of more than one beneficiaries of the transmission system, the monthly transmission charges leviable on each beneficiary shall be computed as per the following formula :

Transmission charges for transmission system payable for a month by the beneficiary of that transmission system = $\left[\sum_{i=1}^{n} \frac{TC_i}{12}\right] \times \frac{CL}{SCL}$

Where TCi = Annual Transmission Charges for the ith Project in the State computed in accordance with regulation 16.

n = number of projects in the State.

CL = Allotted Transmission Capacity to the beneficiary.

SCL = Sum of the Allotted Transmission Capacities to all the beneficiaries of the State transmission system.

25. Incentive

(1) The transmission licensee shall be entitled to incentive on achieving annual availability beyond the target availability as per regulation 13, in accordance with the following formula :

Incentive = Annual Transmission Charges X [Annual availability achieved–Target availability]/Target availabiity

Provided that no incentive shall be payable above the availability of 99.75% for AC system and 98.50% for HVDC system.

(2) Incentive shall be shared by the beneficiaries in the ratio of their average allotted transmission capacity for the year.

CHAPTER 5--MISCELLANEOUS

26. Savings

(1) Nothing in these regulations shall, expressly or impliedly, bar the Commission dealing with any matter or exercising any power under the Act for which no regulations have been framed, and the Commission may deal with such matters, powers and functions in a manner, as it considers just and appropriate.

(2) Powers to Remove Difficulties :

If any difficulty arises in giving effect to these regulations, the Commission may, of its own motion or otherwise, by an order and after giving reasonable opportunity to those likely to be affected by such order, make such provisions, not inconsistent with these regulations, as may appear to be necessary for removing the difficulty.

(3) Powers to Relax :

The Commission, for reasons to be recorded in writing, may relax or vary any of the provisions of these regulations on its own motion or on an application made before it by an interested person.

Appendix I

Depreciation Schedule

Description of Assets	Useful Life (yrs)	Rate (Calculated w.r.t. 90%)	Allowed Depreciation (%)
1	2	3	4 = 2 * 3
A. Land owned under full title	infinity	--	
B. Land held under lease :			
(a) For investment in land	The period of lease or the period remaining unexpired on the Assignment of the lease	--	
(b) For cost of clearing site	The period of lease remaining unexpired at the date of clearing the site	--	
C. Assets :			
Purchased new :			
(a) Plant and machinery in generating Stations including plant foundations :			
(i) Hydro-electric	35	2.57	90
(ii) Steam-electric NHRS & Waste Heat Recovery Boilers/Plants	25	3.60	90
(iii) Diesel-electric & gas plant	15	6.00	90
(b) Cooling towers and circulating water systems	25	3.60	90
(c) Hydraulic works forming part of hydro-electric system including :			
(i) Dams, Spilways weirs, canals reinforced concrete Flumes & syphons	50	1.80	90
(ii) Reinforced concrete pipelines and surge tanks, steel pipelines, sluice gates, steel surge (tanks) hydraulic control valves and other hydraulic works	35	2.57	90

1	2	3	4 = 2 * 3
(d) Building & Civil engineering works of a Permanent character, not mentioned above :			
(i) Offices & showrooms	50	1.80	90
(ii) Containing thermo-electric generating plant	25	3.60	90
(iii) Containing hydro-electric generating plant	35	2.57	90
(iv) Temporary erection such as wooden structures	5	18.00	90
(v) Roads other than kutcha road	50	1.80	90
(vi) Others	50	1.80	90
(e) Transformers, transformer (Kiosk) sub-station equipment & other fixed apparatus (including plant foundations) :			
(i) Transformers (including foundations) having a rating of 100 Kilo volt amperes and over	25	3.60	90
(ii) Others	25	3.60	90
(f) Switchgear, including cable connections	25	3.60	90
(g) Lightning arrestors :			
(i) Station type	25	3.60	90
(ii) Pole type	15	6.00	90
(iii) Synchronous condensor	35	2.57	90
(h) Batteries :	5	18.00	90
(i) Underground Cable including joint boxes and disconnected boxes	35	2.57	90
(ii) Cable duct system	50	1.80	90
(i) Overhead lines including supports :			
(i) Lines on fabricated steel operating at nominal voltages higher than 66 KV	35	2.57	90
(ii) Lines on steel supports operating at nominal voltages higher than 13.2 Kilo volts but not exceeding 66 Kilo volts	25	3.60	90
(iii) Lines on steel or reinforced concrete supports	25	3.60	90
(iv) Lines on treated wood supports	25	3.60	90
(j) Meters	15	6.00	90
(k) Self propelled vehicles	5	18.00	90
(l) Air conditioning plants :			
(i) Static	15	6.00	90
(ii) Portable	5	18.00	90
(m) *(i)* Office furniture and fittings	15	6.00	90
(ii) Office equipments	15	6.00	90
(iii) Internal wiring including fittings and apparatus	15	6.00	90

1	2	3	4 = 2 * 3
(iv) Street light fittings	15	6.00	90
(n) Apparatus let on hire :			
(i) Other than motors	5	18.00	90
(ii) Motors	15	6.00	90
(o) Communication equipment :			
(i) Radio and higher frequency carrier system	15	6.00	90
(ii) Telephone lines and telephones	15	6.00	90
(p) Assets purchased second hand and assets not otherwise provided for in the schedule	Such reasonable period as the Commission determines in each case having regard to the nature, age and condition of the assets at the time of its acquisition by the owner.		

Appendix II

Procedure for Calculation of Transmission System Availability

(1) The transmission elements shall be grouped into following categories for the purpose of calculation of availability of Transmission Systems :--

(i) AC transmission lines : Each circuit of AC transmission line shall be considered as one element.

(ii) Inter-connecting Transformers (ICTs) : Each ICT bank (three single phase transformer together) shall form one element.

(iii) Static VAR Compensator (SVC) : SVC alongwith SVC transformer shall form one element. However, 50% credit to inductive and 50% to capacitive rating shall be given.

(iv) Switched Bus Reactor : Each Switched Bus Reactor shall be considered as one element.

(v) HVDC links : Each pole of HVDC link alongwith associated equipment at both ends shall be considered as one element.

(vi) HVDC back-to-back station : Each block of HVDC back-to-back station shall be considered as one element. If associated AC line (necessary for transfer of inter-regional power through HVDC back-to-back station) is not available, the HVDC back-to-back station block shall also be considered as unavailable.

(2) The Availability of Regional Transmission System shall be calculated as under :

$$\%SystemAvailabilityforACsystem = \frac{o \times AVo + q \times AVq + r \times AVr + s \times AVs}{o + q + r + s} \times 100$$

$$\%SystemAvailabilityforHVDCsystem = \frac{p \times AVp + t \times AVt}{p + t} \times 100$$

Where

o	is	Total number of AC lines.
AVo	is	Availability of o number of AC lines.
p	is	Total number of HVDC poles.
AVp	is	Availability of p number of HVDC poles.
q	is	Total number of ICTs.
AVq	is	Availability of q number of ICTs.
r	is	Total number of SVCs.
AVr	is	Availability of r number of SVCs.
s	is	Total number of switched bus reactors.

AVs is Availability of s number switched bus reactors.

t is Total number of HVDC back-to-back station blocks.

AVt is Availability of t number of HVDC back-to-back station blocks.

(3) The weightage factor for each category of transmission elements shall be as under :--

(a) For each circuit of AC line--

(i) Surge Impedance Loading for Uncompensated line (SIL) multiplied by Circuit Km.

(ii) SIL rating for various voltage level and conductor configuration is given below. However, for voltage levels and/or conductor configurations not listed here, appropriate SIL based on technical considerations may be used for availability calculations under intimation to the beneficiary.

SURGE IMPEDANCE LOADING (SIL) OF AC LINES

Sl.No.	Line voltage (kV)	Conductor Configuration	SIL (MW)
1.	765	Quad Bersimis	2250
2.	400	Quad Bersimis	691
3.	400	Twin Moose	515
4.	400	Twin AAAC	425
5.	400	Quad Zebra	647
6.	400	Quad AAAC	646
7.	400	Tripple Snowbird	605
8.	400	ACKC (500/26)	556
9.	400	Twin ACAR	557
10.	220	Twin Zebra	175
11.	220	Single Zebra	132
12.	132	Single Panther	50
13.	66	Single Dog	10

(b) For each HVDC pole-The rated MW capacity x Circuit Km.

(c) For each ICT bank-The rated MVA capacity.

(d) For SVC-The rated MVAR capacity (inductive & capacitive).

(e) For switched Bus reactor-The rated MVAR capacity.

(f) For HVDC back-to-back station-Rated MW capacity of each block.

(4) The availability for each category of transmission elements shall be calculated based on the weightage factor, total hours under consideration and non-available hours for each element of that category. The formulae for calculation of Availability of each category of the Transmission elements are as follows :--

$$AVo\ (\text{Availability of o. no. of AC lines}) = \frac{\sum_{i=1}^{o} \frac{Wi(Ti - T_{NA}i)}{Ti}}{\sum_{i=1}^{o} Wi}$$

$$AVp\ (\text{Availability of p no. of HVDC poles}) = \frac{\sum_{j=1}^{p} \frac{Wj(Tj - T_{NA}j)}{Tj}}{\sum_{j=1}^{p} Wj}$$

$$AVq\ (\text{Availability of q no. of ICTs}) = \frac{\sum_{k=1}^{q} \frac{Wk(Tk - T_{NA}k)}{Tk}}{\sum_{k=1}^{q} Wk}$$

$$AVr\ (\text{Availability of r no. of SVCs}) = \frac{\left[\sum_{l=1}^{r} \frac{0.5 \times W_I l(T_I l - T_{NAI} l)}{T_I l} + \sum_{l=1}^{r} \frac{0.5 \times W_C l(T_C l - T_{NAC} l)}{T_C l} + \right]}{\left[\sum_{l=1}^{r} 0.5 \times W_I l + \sum_{l=1}^{r} 0.5 \times W_C l\right]}$$

$$AVs\ (\text{Availability of s no. of Switched Bus Reactors}) = \frac{\sum_{m=1}^{s} \frac{Wm(Tm - T_{NA}m)}{Tm}}{\sum_{m=1}^{s} Wm}$$

$$AVt\ (\text{Availability of t no. of HVDC Back-to-Back Blocks}) = \frac{\sum_{n=1}^{t} \frac{Wn(Tn - T_{NA}n)}{Tn}}{\sum_{n=1}^{t} Wn}$$

Where

Wi	=	Weightage factor for ith transmission line.
Wj	=	Weightage factor for jth HVDC pole.
Wk	=	Weightage factor for kth ICT.
WI1 & WC1	=	Weightage factors for inductive & capacitive operation of 1th SVC.
Wm	=	Weightage factor for mth bus reactor.
Wn	=	Weightage factor for nth HVDC back-to-back block.

Ti, Tj, Tk, TI1, TC1, TM & Tn--The total hours of the ith AC line, jth HVDC pole, 1th ICT, 1th SVC (Inductive Operation), 1th SVC (Capacitive Operation), mth Switched Bus Reactor & nth HVDC back-to-back block during the period under consideration (excluding time period for outages not attributable to transmission licensee for reasons given in the procedure below in Para 6).

TNAi, TNAj, TNAk, TNAI1, TNAC1, TNAn--The non-availability hours (excluding the time period for outages not attributable to transmission licensee taken as deemed availability as per the procedure given in Para 5 below) for ith AC line, jth HVDC pole, kth ICT, 1th SVC (Inductive Operation), 1th SVC (Capacitive Operation), mth Switched Bus Reactor & nth HVDC back-to-back block.

(5) The transmission elements under outage due to following reasons not attributable to the tranmission licensee shall be deemed to be available :--

(a) Shut down of transmission licensee's transmission elements availed by other agency/agencies for maintenance or construction of their transmission system.

(b) Manual tripping of transmission licensee's line due to over voltage and manual tripping of switched bus reactor as per the directions of SLDC/RLDC.

(6) Outage time of transmission licensee's transmission elements for the following contingencies shall be excluded from the total time of the element under period of consideration.

(a) Outage of elements due to acts of God and force majeure events beyond the control of the transmission licensee. However, onus of satisfying the SLDC that element outage was due to aforesaid events and not due to design failure shall rest on the transmission licensee. A reasonable restoration time for the element shall be allowed by SLDC and any additional time taken by the transmission licensee for restoration of the element beyond the reasonable time shall be treated as outage time attributable to the transmission licensee. SLDC may consult the transmission licensee or any expert for estimation of restoration time. Circuits restored through ERS (Emergency Restoration System) shall be considered as available.

(b) Outage caused by grid incident/disturbance not attributable to the transmission licensee, e.g. faults in substation or bays owned by other agency causing outage of transmission licensee's elements, tripping of lines, ICTs, HVDC back-to-back stations etc. due to grid disturbance. However, if the element is not restored on receipt of direction from SLDC/RLDC while normalising the system following grid incident/ disturbance within reasonable time, the element will be considered not available for whole period of outage and outage time shall be attributable to the transmission licensee.

(7) If the outage of any element causes loss of generation at Central/State Sector Sation(s) then the outage period for that element should be deemed to be twice the actual outage period for the day(s) on which such loss of generation has taken place.

By Order of the Commission,

ANAND KUMAR,
Secretary,
Uttaranchal Electricity Regulatory Commission.

पी0एस0यू0 (आर0ई0) 41 हिन्दी गजट/417–भाग 1–क–2004 (कम्प्यूटर/रीजियो)।

मुद्रक एवम् प्रकाशक–उप निदेशक, राजकीय मुद्रणालय, उत्तरांचल, रुड़की।