

5. Tariff Determination Principles for the Years 2002-03 through 2005-06

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5.1 Five-year Tariff Setting Principles

The Commission has been apprised that the GoNCT of Delhi proposes to unbundle the DVB and privatize the distribution system. As per the petition, the mechanism is expected to benefit the consumers consequent upon successful privatization of the distribution companies to be formed as a result of unbundling of DVB as a part of reforms in power sector in Delhi. As a part of the tariff proposal, the petitioner have also submitted for Commission's approval a set of Tariff

Determination Principles for the year 2002-06.

5.1.1 DVB have also argued that such a proposal would ensure that the private investor shall have a clear cut business plan to which they can tailor their future business strategy. In the petition, it has been stated that future increases in power purchase cost would be balanced with the increased efficiency improvements.

5.2 Tariff Setting Formula

For this purpose, DVB have proposed the following Tariff setting formula

Tariff in Year 'Y' = Tariff in year '2001-02' + Required Revision in Tariffs in year 'y'

Where,

Required Revision in Tariffs in year 'y'=(Sum Total of Change in Power Purchase Cost, Change in billing revenue due to reduction in T&D losses, Change in Salary & O&M, Change in Administration and General Expenses, Change in interest on debt, Change in depreciation, Change in Return on Equity, Change in Collection Efficiency Shortfall, Change in Bad Debts Allowed and Change in Revenue Gap left Uncovered in the Previous Year)/(Estimated units sold in year 'y')

y = any year from 2002-03, 2003-04, 2004-05 and 2005-06

The above changes in costs shall be calculated with reference to the Tariff (ARR) proposal for the year 2001-02.

5.3 Proposed Mechanism

Briefly stated, the proposed mechanism for computing the changes in various costs shall be:

5.3.1 Changes in Power Purchase Cost

It would be based on the bulk supply tariff approved by the Commission each year for the Transmission/Generation Company formed out of the unbundling of DVB.

5.3.2 T&D losses

DVB have also proposed a T&D loss reduction plan for next 5 years @ 2% reduction in each year between 2001-02 to 2003-04 and @ 3% reduction in each of the years 2004-05 and 2005-06.

5.3.3 Employee costs

DVB have proposed that salary and wages may be determined by escalating the figures of salary for the year 2001-02 by 11.21% per annum which is based on the pattern exhibited during the period 1988-89 to 1997-98.

5.3.4 O&M Expenses and A&G Expenses

DVB have proposed that these expenses would be determined by increasing the amount of such expenses as per an index.

5.3.5 Interest on Debt and Return on Equity

DVB propose to base the return to capital on the notified balance sheet of the unbundled entities and the annual capital expenditure for each year for the next five years, which shall be fixed in advance by the Commission. It has also proposed assumptions with respect to debt-equity ratio, interest immediately succeeding year on debt, repayment term for debt, etc.

5.3.6 Depreciation

Depreciation would be based on the gross fixed assets as specified in the opening balance sheet notified in the

transfer scheme. Any new investment in any year would be assumed to be capitalized in the immediately succeeding year. DVB have also proposed assumptions about the rate of depreciation.

5.3.7 Bad debt and collection efficiency shortfall

Bad debt and collection efficiency shortfall would be based on the survey report of Indian Market Research Bureau commissioned by DVB for research designed to understand the reasons of payment defaults.

5.4 DVB have in conclusion also submitted that in order to obviate the chances of uncertainty beyond the years 2005-06, the Commission at least one year before the commencement of the financial year 2006-07, should lay down the principles through which tariff would be determined in the next five years.

5.5 Public Response

5.5.1 Public have generally opposed the proposal. It has been stated that the proposal seems to be the product of the concern for creating a privatisation enabling environment rather than serving the consumer.

5.5.2 The public stated that the proposal fails to realise that in return for the certainty of returns in tariff expected by the investors, the consumers expect certain degree of assurance regarding the quality of supply and service. There is no mention of this important aspect in the proposal. Consumers have also suggested that DVB should have provided information on initiatives they have taken for taking the potential investors into confidence and if they have done so then

they should also provide the details of the suggestions expressed by the investors. In absence of the same it is not possible to accept the view that such a tariff will create an environment enabling attraction of investors to the power sector in Delhi. The DVB proposal has made an effort to bind the new owners through strategies that may not suit their plans. Such plans would also be binding consumers to the inefficiencies on the assumptions made by DVB for which no justification has been provided.

5.5.3 Stakeholders have further argued that DVB cannot be expected to draw up business plans for other entities. It has been stated that there will be three distribution companies after restructuring. Each of these companies will have different sets of consumers with different levels of compliance, different geographical areas and other factors. As such the proposal of each of these entities would be entirely different from each other. Whereas one could be a profit-making venture as compared to the other which could be loss making. In order that they earn an almost uniform rate of return on their fixed assets, which is reasonable as prescribed under law, the consumers have suggested that the Commission may like to set different tariff structures for different companies considering all these factors. By deciding tariff structure for new companies the Commission may also like to set some accountability parameters, which cannot be imposed on them through DVB.

5.5.4 The consumers feel that the investors should be in a position to reduce T&D losses aggressively as compared to the targets set by DVB.

5.5.5 In the absence of audited accounts and details on other crucial parameters it is not possible to evaluate the tariff proposal.

5.5.6 The consumers also opined that privatisation should take place first and then the proposal be discussed based on commitment given by the private entity.

5.6 Response from the Petitioner

5.6.1 Reforms Process not to be deferred

DVB while regretting the fact that the audited Accounts for recent years are not available for reasons that are now a matter of past history, have responded by stating that data of sufficient accuracy have already been submitted before the Commission with reference to the crucial parameters in course of the proceedings. DVB have expressed the view that the reforms process should not be deferred by suggesting that we should wait (a few years) until their accounts have been audited up-to-date.

5.6.2 Relationship between Tariff Setting and Privatisation

Regarding the relationship between tariff fixation and privatization, DVB have not subscribed to the view that it should be first unbundled and privatised and then expect the newly established entities to make tariff submissions. According to DVB this would be unrealistic; it has contended that, in fact multi year incentivising tariffs or tariff setting principals have been a feature of successful privatisation in other countries. Without any idea of what the tariff is likely to be or the basis on which the rates will be fixed the private companies would not be able to decide about the bids to be submitted by them. The interaction of DVB with potential investors has made clear the

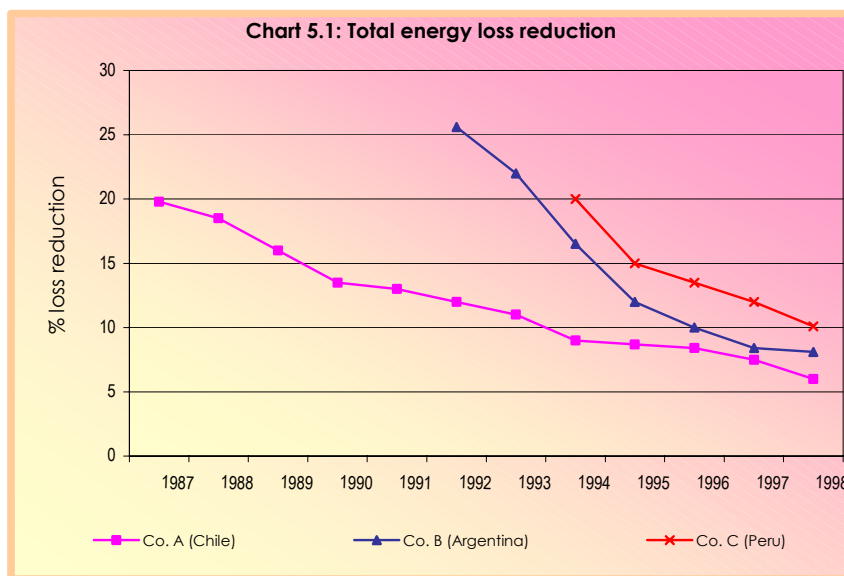
importance of introducing some degree of predictability in respect of the tariff and the targets setting for the T&D loss reduction in particular, though, the particular proposals may reflect DVB's own assessment of what would be appropriate. DVB have stated that neither the organisation nor any of the potential investors is in a position to draw on a body of accumulated experience regarding how quickly T&D losses can be reduced in Indian conditions after privatisation. However no utility in India has, according to DVB, yet been able to do so at the rate of 12% over a five-year period in an area with a scale of operation comparable to the National Capital Territory. In a detailed note relating to T&D losses the petitioner have, while referring to the initial phase of privatization, submitted that "...the cumulative effect at the end of this period will be very significant and beneficial to the consumers; during this period any additional efficiency gains that the private companies are able to achieve would, rightly go to them as an incentive...".

5.6.3 Necessity for positive Steps

The petitioner have further stated that the successor entities to DVB shall have to innovate and experiment a great deal and the targets suggested by DVB are by no means unambitious in this context. The understanding of the petitioner organisation is that unrealistic target setting in this regard was a major reason for failure of privatisation in Kanpur (Uttar Pradesh). The available experience has, according to the petitioner, thus suggested that there is no room for complacency in this regard and that it would be very advisable to take positive

steps to create an appropriate climate for investment.

5.6.5 DVB has also enclosed a graphic representation regarding such examples of controlling energy losses:



5.6.4 Statistical Input on T&D losses

DVB have furnished certain data regarding the rate at which it has been possible for new/privatized companies to reduce T&D losses subsequent to power sector reforms in different countries.

- (i) 13.8% reduction in 11 years (from 19.8% in 1987 to 6% in 1998) by one company in Chile.
- (ii) 17.5 % in 6 years (from 25.6% in 1992 to 8.1% in 1998 by one company in Argentina).
- (iii) 11.5% in 3 years (from 30% in 1992 to 18.5% in 1995) by EDF in Argentina.
- (iv) 9.9% in 4 years (from 20% in 1994 to 10.1% in 1998) by one company in Peru.
- (v) 10.5% in 9 years (from 22.7% in year zero to 12.2% in year nine) by EDF in Venezuela.
- (vi) 2.2% in 4 years by EDF (from 20 % in 1994 to 17.8% in 1998) in Ghana.

5.6.6 Necessity for norms based Approach

With reference to the argument, that the proposed tariff setting principles should not be adopted on the basis of available information, which is described as an estimation of various financial and statistical indices, it has been stated by DVB that the case for adopting some elements of a norm based or an incentive based approach in tariff setting is stronger where it is considered that the data available for more precise tariff fixation is not available.

5.6.7 DVB clarifies its role in Privatisation

The petitioner, while responding to comments that the responsibility for promoting privatisation of power sector is that of the Government and not that of DVB, have stated that the scenario apparently envisaged by the respondents that the Government

should effect privatisation while DVB remains as an idle or passive spectator is impractical and wholly unrealistic. According to it the GoNCT of Delhi has made its policy of privatisation explicitly known since the issue of its **Policy Paper in February 1999** and the DVB have been in close contact with the Government and has taken all steps in the direction of reforms and privatisation with the approval of, and under the directions of, the Government. DVB is bound to implement the policies of the Government and, since it is DVB that possesses the relevant knowledge of its own organisation and expertise in the relevant technical issues, it is bound to play a major role in giving effect to the Government's declared policy of power sector reforms.

5.7 Commission's analysis

5.7.1 Issues for Commission's consideration

The issues for Commission's consideration in this regard are:

- (a) Whether fixing tariff principles for the next five years is in the interest of electricity supply industry and the consumers in the NCT of Delhi under the present circumstances; and
- (b) Given the limited information available, whether the Commission is in a position to determine the tariff principles for the next five years.

5.7.2 Different Methodologies for Tariff Setting

The Commission has deliberated on both the issues in detail. It may be stated that the different methodologies generally followed for fixation of tariff have been listed out in the Concept Paper on Tariff brought out by the Commission earlier.

The three standard methodologies most commonly followed are;

- Rate of Return Regulation
- Performance Based Regulation
- Price/Revenue Cap Regulation

5.7.3 Performance Based Regulations (PBR)

5.7.3.1 The Commission notes that the proposal from DVB would, so to say, fall in the category of Performance Based Regulation (PBR).

5.7.3.2 The PBR methodology tends to introduce an element of incentives for effecting improvements in certain key function areas based on performance above the "normal range". Under this approach, the utility can also be penalised for under performance. The system introduces a stretched out regulatory lag, which reduces the necessity for rigid regulatory command and control, very frequently. The strategy consists of setting the base line rates under RoR principle for a longer time period (5 to 10 years) and adjustment of tariff formula on the basis of performance as reflected in selected indices. The incentives/penalties being provided in monetary terms affect the profitability of the organisation. The parameters devised for performance appraisal can be simple depending on one or two areas such as operational parameters for generation and/or T&D loss reduction etc. Alternately, it may include multiplicity of factors such as level of consumer satisfaction, matters relating to protection of environment or other issues relating to social costing of projects.

5.7.3.3 Essential requirements for PBR methodology

The PBR system of regulation has to be devised in a manner that the rewards and penalties are administered systematically and judiciously and the same do not lead to undue enrichment or impoverishment of the utility. The goal setting should be based on critical appreciation of the achievability of targets and assessment of short and long term trade offs made by the utility. The standards followed for goal setting have to rely upon external and normative standards and not on utility's own standard of performance.

5.7.3.4 Development of efficient MIS of vital importance

The system, however is highly dependent on information management in key areas, and can be successful only when the high standards of data management exist.

5.7.4 Commission's observations on limits for T&D losses

The Commission has analysed the DVB proposal with reference to the above methodology. The Commission has noted that of the various factors the single most important factor is the estimation and fixation of targets for reduction of T&D losses notwithstanding that other factors are also quite important.

5.7.5 In this context the Commission would like to recall a reference made by the Department of Power in July 2000 wherein the Government sought from the Commission the limits for the T&D losses to be permitted for fixation of tariff to facilitate the formation of Transfer Scheme. The Commission had then

responded to GoNCT of Delhi, bringing out that:

❖ *The T&D losses being vital indicators of functional efficiency of DVB and having bearing on determination of tariff for supply of energy to the consumers are expected to be determined through a systematic process. The process based on energy audit of the utility shall rely upon determination and categorisation of current losses and appraisal of the factors influencing the differences, which are noted between the actual and benchmark figures of such losses in respect of similarly placed systems.*

❖ *The reduction in losses calls for preparation of medium and long term investment plans for the up gradation of T&D system (for technical losses) and managerial improvement including the enforcement mechanism and accounting procedure (for commercial losses). Obviously, the action plan for such exercise is to come from DVB indicating the time frame according to which various activities are proposed to be implemented for facilitating gradual reduction in quantum of losses.*

❖ *The starting point for assessment of permissible quantum of T&D losses would therefore be the action plan from the utility based on the results of the energy audit carried out by it.*

5.7.6 The Commission notes that the requisite inputs, as above, are still not available.

5.7.7 Different Targets for new entities

As on today DVB is organized into six Circles on the basis of geographical spread viz. Central, East, North, North-West, South and West. On restructuring of

DVB the six Circles would be combined into three distribution companies keeping in view the operational and managerial efficiency including T&D losses. Although the objective (from T&D consideration) would be grouping Circles in such a way so as to club the high T&D losses Circles with low T&D losses Circles, yet it might not be practically possible to have resultant distribution companies with uniform T&D losses for all three companies. The proposal to have uniform targets for reduction of T&D losses (2% each for the first three years and 3% each in the subsequent two years) for all the three distribution companies would therefore be misplaced.

5.7.7.1 The inference which can be drawn

from the statistical information furnished by the DVB (**Para 5.6.4**) is that there can be substantial difference in the results for such efforts from place to place and it is ultimately the factors specific to the related power industry and the socio-economic setup, which influence the ultimate outcome. Another important observation as made out from the graphic representation is that the rate of loss reduction is much higher in the initial years ranging between 5 to 6% per annum and the same stands to stabilise after it has reached the saturation limits nearing the acceptable level of technical losses. It is also noted that the rate of loss reduction depends upon the base level of T&D losses prevailing at the time of restructuring.

5.7.8 Relevance of average Tariff

It would appear that DVB have proposed the formula for determination of 'average' tariff in a particular year based on 'average' tariff filed by it for the year 2001-02. The Commission is of the view that firstly, the very assumption that the tariff proposal filed by DVB will be approved in *toto* is

possibly a misplaced concept and thus to that extent, the very basis would undergo the consequential change. Secondly, since the estimated units billed to various categories of consumer in year 'Y' will very likely be different from the billed units envisaged in their tariff proposal, the basis of calculation does not remain same for 'tariff in year 2001-02' and 'required revision in the tariff in year 'Y'. It is not clear that once this average tariff for a year is determined, then how the tariffs for different categories of consumers will be determined.

5.7.9 Difficulties regarding Annual Capital Expenditure

DVB have proposed that the Commission should project the annual Capital expenditure in each year for the next five years on the basis of historical trend. The Commission finds it difficult to accept this logic because the DVB has not been able to provide even the present value of fixed assets and is relying on a number of assumptions for the same. Obviously if the projection is to be made for the annual capital expenditure, it could be done considering the present status of the assets, the need for investment, the availability of funds etc.

5.7.10 Efficiency Improvement Plan

The Commission would like to state that the multi year approach *per se* should not only include efficiency improvement plan like reduction in T&D losses but also improvement in the quality of service. However, present proposal of DVB does not talk on any efficiency enhancement measures, which obviously it could not do on behalf of new entities.

5.7.11 The Commission has thus noted that the DVB have made assumptions for calculation of the cost elements in the years subsequent to the year 2001-02 which are not tenable. As earlier stated the Commission believes that multi year tariff approach linking to some indices would be suitable for mature and stable environment so that the investing companies can undertake efficiency improvements and reap benefits from them. The efficiency benchmarks have to be robust and should be such that neither the utility nor the consumer should suffer or benefit unduly in future.

5.7.12 In conclusion the Commission finds that although " multiyear tariff setting principles " is an issue that merits consideration it is not the mature stage for fixation of multiyear tariff principles for the purpose of this Tariff Order.

5.7.13 Commission's Role

The Commission is aware of its role as the facilitator of the overall reform process initiated by GoNCT of Delhi. The Delhi Electricity Reform Act, 2000 lists increasing avenues for participation of private sector in the electricity industry as one of the objective in the Preamble of the Act and

designates this as one of the functions of the Commission.

5.7.14.1 Appreciating the spirit behind the proposal for multi year tariff the Commission shall be willing to consider any suggestion in this regard at an appropriate stage in future.

5.7.14.2 The Commission further wishes to convey that it is committed to ensuring that power is supplied in an increasingly efficient manner. To enable such a development, the Commission will strive towards aiding the creation and sustenance of a viable power sector.

The Delhi Electricity Regulatory Commission has after due deliberations on the Petition (Petition No.1/2001) filed by the Delhi Vidyut Board made the above orders , with reference to the issues raised in the petition, approving the Tariff Schedule and Conditions of Supply as annexed to this order. The Commission further directs that the new Tariffs shall be implemented w.e.f. 1st June2001. This order is signed, dated and issued by the DERC on the 23rd day of May 2001 .

23rd May 2001

New Delhi

(V.K.Sood)

Chairman