

5167/2018/CRU-CERC (9)



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**DAMODAR VALLEY CORPORATION**  
**COMMERCIAL DEPARTMENT**  
**DVC TOWERS: V I P ROAD**  
**KOLKATA: 700 054.**

No. Coml. / Tariff / CERC / Comments / 2547

Date: 13 /07/2018

To  
The Secretary  
Central Electricity Regulatory Commission  
3rd and 4th Floor, Chanderlok Building,  
36, Janpath, New Delhi - 110 001

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18/07/18  
Encl. 1

Sub: Comments/suggestions on Consultation Paper on Terms and Conditions of Tariff Regulations for Tariff period 1.4.2019-to 31.03.2024

Ref: Public Notice vide No. L-1/236/2018/CERC dated 24/05/2018

Dear Sir,

This is in reference to Consultation Paper published by CERC dated 24.05.2018 on Terms and Conditions of Tariff Regulations for Tariff period 1.4.2019-to 31.03.2024 wherein the comments/suggestions of the stakeholders on various regulatory options were solicited in order to capture the developments and challenges faced by the power sector and changing financial market in the sector, the assumptions and factor to be considered while framing the terms and conditions of tariff period.

Accordingly, the comments/suggestions in respect of DVC, considering some special aspects conferred upon DVC by CERC in present regulation for the period 2014-19 on the subject issue is enclosed herewith for your kind perusal please.

Yours faithfully,

Executive Director (Commercial)

Enclosed: As stated above

Copy to:-

1. The Director (OM), MOP, GOI, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001.
2. The Member (PS), CEA, SewaBhawan, RK Puram, New Delhi-100066.
3. The Member (GO & D), SéwaBhawan, RK Puram, New Delhi-100066.
4. The Member Secretary, ERPC, 14, Golf Club Road, Kolkata-700033.

**Comments of DVC on Consultation Paper on Terms and Conditions of  
Tariff Regulations for Tariff period 1.4.2019-to 31.03.2024**

**Preamble:-**

DVC is a statutory body constituted under the DVC Act, 1948 with multifarious activities and in this regard DVC is distinct from other electricity utilities. DVC is engaged in activities related to electricity described as power (as an integrated entity in Generation, Transmission, Distribution and Retail supply of Electricity to the consumers , bulk supply of electricity to other procurers including states of West Bengal and Jharkhand utilities.

DVC has other multifarious functions in the Damodar Valley. DVC has the obligation to undertake development Valley, which falls in the provinces of West-Bengal and Jharkhand. The other functions of DVC include promotion and operation of schemes for irrigation, flood control, water supply and drainage and improvement of flow conditions in Hooghly river, navigation in the Damodar river and its tributaries and channels, afforestation and control of soil erosion in the Damodar valley and promotion of public health and agricultural, industrial, economic and general wellbeing in the Damodar valley under its areas of operation.

The three broad divisions of DVC namely power, irrigation and flood control. The other activities mentioned herein above are mostly socio development activities which does not earn any revenue to DVC. Under the provisions of the DVC Act, DVC has been authorized to undertake such subsidiary activities and cost of expenses relating to such subsidiary activities are being allowed to be charged to the activities of power, irrigation and flood control. Further, out of three activities of power, irrigation and flood control, for the past many years the power activities involving generation, transmission , bulk supply, distribution and retail supply constitute the main activities for earning money and also for engaging the employees and workmen.

In this regard reference to the decision of Hon'ble Appellate Tribunal in the order dated 23.11.2007 passed in Appeal No 271 etc. of 2007 in regard to the applicability of various provisions of DVC act which is not inconsistent with Electricity Act is worth mentioning.:

DVC as a statutory body is required to maintain appropriate scheme for meeting terminal benefits. The terminal benefits of employees are the pension (wherever the appointment of employees is on pension basis), gratuity, contributory provident fund i.e. CPF (wherever the employment of the employees is on Provident Fund contribution basis instead of pension). In addition to the above the General Provident Fund (GPF) Scheme applicable to all who are under pension scheme.

The matters relating to terminal benefits had been duly placed by DVC before the CERC since very beginning regarding determination of tariff. The generation and transmission tariff of DVC is being determined by Central Commission in exercise of the powers under section 79 of the Electricity Act. The tariff so determined by the Central Commission becomes an input cost for deciding the distribution and retail supply revenue requirements and tariff design. The distribution and retail supply revenue requirements and tariff design are to be decided by the respective state commission, namely, JSERC and WBERC.

The Employees Provident Fund and Miscellaneous Provisions Act, 1952 provides for the manner in which the Provident Fund Scheme needs to be administered. As the above Act, DVC is maintaining

the Provident Fund both CPF and GPF in respect of each of the employees with individual account of the employees duly reflecting (a) the contribution apportioned to such employees, (b) apportionment to such employees, apportionment of the interest earned on the money invested from the Provident Fund Scheme in approved securities and (c) also contribution made by the employees to the GPF. Such contributions are maintained in a separate account of each of the employees as per applicable scheme.

The contribution to the Pension and Gratuity Trust are made based on actuarial valuation undertaken from time to time by an actuary appointed for the purpose.

### **Tariff Design: Generation & Transmission**

**DVC proposes to continue two part tariff for Generating station and Single part tariff for ISTS as per the present regulation 2014-19.**

#### **Thermal Generating Station: Tariff Structure**

##### **Comments of DVC against Point no. -7.2.4 to 7.2.6:**

However, if the proposed scheme of three part tariff is decided to be introduced, DVC proposes the following:

- (1) IWC should be included within Fixed charge.
- (2) Any part of the O&M should not be included in the variable component due to following reasons:
  - O&M consist of mainly employee cost & labour cost and other repair & maintenance cost to maintain the plant at running condition which is fixed irrespective of quantum generated.
  - With the integration of renewable energy, low PLF due to surrender of power by beneficiaries, the Generating station will undergo flexible operation (frequent ramping up & down) resulting in higher wear and tear of the machine– which causes higher O&M cost. So, O&M cost needs to be increased. Special allowance for investment on control system for maintaining present level of technical minimum operation of thermal unit due to integration of renewable energy needs to be considered.
- (3) With the integration of renewable energy, Generating station will undergo flexible operation (frequent ramping up & down) life of the unit will be affected, which needs to be covered up in Tariff.

#### **Thermal Generating Station: Tariff Structure**

##### **Comments of DVC against Point no. -7.3.4:**

- A. The Generating station crossing the age of 25 years- DVC proposes for both option (i) replacement of inefficient sub-critical unit by super-critical unit and (iii) renovation of old plants.



- B. For Generating Station, PPA between beneficiaries and Generating stations are executed much before COD. It has been observed that considerable time gap exists between COD of Generating Station and Tariff order issued by Hon'ble Commission. In absence of determined/approved tariff by Hon'ble Commission just after COD, billing to beneficiaries poses a problem. It is therefore proposed that Hon'ble Central Commission may issue provisional tariff order in such cases so that billing can be done to the beneficiaries during the intervening period subject to adjustment after issuance of a final tariff order.

#### **Inter State Transmission System: Tariff Structure**

It has been observed that considerable time gap exists between tariff petition filed and Tariff order issued by Hon'ble Commission. In absence of determined/approved tariff by Hon'ble commission, recovery of the same poses a problem. It is therefore proposed that Hon'ble Central Commission may issue provisional tariff order in such cases so that billing can be done to the beneficiaries during the intervening period subject to adjustment after issuance of a final tariff order.

#### **Comments of DVC against Point no. -7.5.4 to 7.5.6:**

The recovery of transmission charges by DVC has been primarily made from the consumers of DVC in the command area through the retail tariff as determined by the State Commissions of West Bengal and Jharkhand. DVC is not acting only as the Transmission Licensee or undertaking transmission activity as an identified business activity, where the charges payable can be recovered through the pooled mechanism of POC as in the case of a Transmission Licensee. It is submitted that the transmission charges as determined by this Hon'ble Commission is an input cost in the determination of retail tariff by the State Commissions.

It is submitted that the recovery of transmission charges through POC mechanism cannot be applied recovery in the case of DVC as DVC has negligible open access consumers. In this regard it is submitted that in the previous periods, this Hon'ble Commission has taken note of the submissions of DVC as under:-

- a. Order dated 27.9.2013 in Petition no. 270/TT/2012

*25. The petitioner has submitted that pooled power to all consumers is supplied through its integrated and composite T&D network and specific consumer or a specific group of consumers cannot be identified with reference to any particular transmission segment, sub-station or R/S for sale of power to consumers located in two States namely the State of West Bengal and the State of Jharkhand. It has also submitted that the benefit of strengthening the system either by adding substation/transmission line or by augmentation of the existing sub-stations are shared by all the consumers of DVC and as such the entire grid network of DVC may be considered as a single T&D system. It has also pointed out that the*



*Commission has already considered this aspect in its order dated 8.5.2013 in Petition No.272/2010.*

b. Order dated 8.5.2013 in Petition no. 272/TT/2010

36. In response to the letter of the Commission dated 11.3.2011, the petitioner has filed additional information on 8.4.2011 and has submitted that addition of sub-stations, transmission lines, elements of Transmission and Distribution (T&D) network are undertaken by the petitioner in order to meet the entire load growth in the DVC command area, which are spread over the two States (i.e. the State of West Bengal and Jharkhand) and also to strengthen its T&D network for stability and reliability of the system. Accordingly, the petitioner has submitted that all the sub-stations, transmission lines constructed and commissioned during the period 2006-09 have been considered for additional capital expenditure in terms of Regulation 53 (2) (iv) of the 2004 Tariff Regulations, towards additional works/ services which have become necessary for efficient and successful operation of the project. The petitioner has also submitted that pooled power to all consumers is supplied through its integrated and composite T&D network and specific consumer or a specific group of consumer can be identified with reference to any particular transmission segment, sub-stations or receiving stations for sale of power to consumers located in two contiguous states viz. State of West Bengal and Jharkhand. It has further been submitted that the benefit of strengthening the system either by adding sub-stations/transmission line or augmentation of the existing sub-stations/ transmission lines are shared by all the consumers of the petitioner and hence, the entire grid network of the petitioner may be considered as a single T&D system as whole. We now examine the claims of the petitioner for additional capital expenditure for the years 2004-05 and 2005-06 in the succeeding paragraphs.

The Hon'ble Tribunal in order dated 23.11.2017 in Appeal Nos. 271, 272, 273, 275 of 2006 & 8 of 2007 held as under with regard to the integrated transmission system of DVC:-

*110. Taking an integrated view of the above provisions and applying them to the instant case, it is clear that any 'transmission line' i.e. high pressure (HT) Cables and overhead lines (HT), excluding the lines which are essential part of distribution system of a licensee (WBSEB and JSEB as the case may be), used for the conveyance of electricity from a generating station owned by DVC and located in the territory of one State (either State of West Bengal or Jharkhand) to generating station or a sub-Station located in the territory of another State (either in the State of Jharkhand or West Bengal) together with any step-up and step down transformer, switch gear and other works necessary to and used for the control of such cables or overhead lines and such building or part thereof as may be required to accommodate such transformers, switch-gear and other works shall constitute the "Inter-State Transmission system" of DVC. Further, the transmission segments from the generating Stations to HT Consumers located in the same territory of a State are deemed 'dedicated transmission lines' and are to be maintained and operated by DVC.*

*111. DVC has been supplying power from its generating stations to West Bengal Electricity Board and Jharkhand Electricity Board along with nearly 120 HT-Consumers either through inter-state transmission lines or through the point-to-point 'dedicated transmission lines'. We, therefore, conclude that all transmission systems of DVC be considered as unified deemed inter-state transmission system, insofar as the determination of tariff is concerned and as such regulatory power for the same be exercised by the Central Commission.*

The same methodology is required to be applied by the Hon'ble Commission. **The POC mechanism cannot ipso facto be applied to DVC.**

In view of the above, it is requested that this Hon'ble Commission should make a provision with regard to the method of recovery of transmission charges by DVC in line with that already accepted by the two State Regulatory Commissions.

**DVC proposes to continue Single part tariff for ISTS as per the present regulation 2014-19.**

However, if the proposed scheme of two part tariff [i.e. Fixed cost (Transmission Access Charge) plus Variable cost (Transmission Service Charge)] is decided to be introduced, DVC proposes following:

Considering the composite and unified nature of T&D network as existing in DVC, where element wise specific beneficiaries cannot be identified – the fixed component (i.e. Transmission Access Charge) may be proposed to be the part of annual fixed cost of the entire transmission system consisting of debt service obligations, interest on loan, guaranteed return; Recovery of the same is to ensured based on TAFM/TAFY.

Further, long term planning for transmission system is normally being carried out considering reliability margin as stipulated in the Transmission Planning criteria of CEA, power transfer requirement in future as well as ensuring optimal utilisation of Right-of-Way, land availability for substation etc. The transmission capacity has been planned and built in order to be sufficient to cater Peak power flow requirement and Grid security and reliability margin (N-1 criterion is followed to increase reliability). Moreover, in view to facilitate the penetration of Renewable Energy in grid, additional infrastructure whose utilisation factor may be low, is required to be created. Hence, developer is in urge towards recovery of O&M, IWC expenses for such investment incurred considering prospective load growth and reliability margin.

In view of the above, variable component (i.e. Transmission Service Charge), proposed to be consisting of sum of incremental return above guaranteed return, operation and maintenance expenses and interest on working capital, should not be linked with yearly transmission charges based on actual flow or actual dispatch against long term access. O&M expenses, interest on Working Capital etc will not become zero even if the power flow is zero. So, a part of the variable component should be guaranteed and not to be linked with actual power flow i.e. the concept of minimum guaranteed flow is proposed to be adopted.



Further, Utilization of the transmission asset is completely dependent on the load-generation scenario and developer has no control over it except to make the system available and healthy.

Moreover, investment for implementation of Smart-Grid as per recent policy of Niti Aayog or any other automation/ adoption of state of art technology, may be considered for determination of capital base.

## **8.0 Deviation from Norms**

### **Comments of DVC against Point no. -8.5:**

There are so many vintage power station which has already covered useful life or is going to cover the useful life in the next tariff regime. So it is prudent to specify the target dispatch and incentive & disincentive mechanism for different levels of dispatch after analyzing the historical data and applying the power of relaxation as conferred upon the commission under regulation 48.

## **9.0 Components of Tariff**

### **Comments of DVC against Point no. -9.4:**

The power generator which are not fully tied up the determination of tariff of generating station should be made for entire capacity and restrict the tariff for recovery to the extent of power purchase agreement on pro-rata basis and balance capacity will be merchant capacity or tied up under Section 63

## **10.0 Optimum Utilisation of Capacity**

### **Comments of DVC against Point no. -10.8:**

Optimum utilisation of capacity proposing re-fixing of annual contracted capacity. This will lead to indirect surrender of long-term PPA by DISCOMS and may lead to uncertainty in financial viability of plant and financing of the project will be difficult. Bidding out of surplus sale is uncertain and may be distressed and DISCOMs will surrender PPA and will purchase from open BID.Hence, the proposal should not be introduced.

DVC reserves a strong contrary view against such present proposition.

## **11.0 Capital Cost**

### **Comments of DVC against Point no. -11.10:**

It was observed that CERC has arrived average capital cost as Rs. 6.65 Cr/MW for thermal power plant during the period 2008-13 by taking a sample size of 30 and Rs. 5.5 Crs/MW for Hydel power station during the period 2000-2007 taking a sample size of 20. It show

that standard deviation for determination of average capital cost was as high as Rs. 2.44 Cr/MW.

It is not clear that while taking the sample size of so small number for generating station both thermal and hydel, whether the factors like Land availability, geographical terrain, socio-economic conditions of the place of the power station, political condition, wind zone, seismic zone, compensation, ROW etc. was taken into account. Without considering all the above factors, on case to case basis any generalized determination of benchmark capital cost will be detrimental for project viability both for thermal & hydel.

Moreover, estimation philosophy/base may differ from utility to utility. Standardization of BOQ, specification of equipment, estimate format (including over-head charges, compensation, IDC, contingency etc) shall differ. Over and above, a schedule of rate (for supply part , erection part) in line with DSR of Civil works needs to be formulated with a provision to incorporate expenditure on case to case basis based on different external conditions such as land, geographical terrain, wind zone, , etc. The schedule rate should be updated on continuous basis based on market data.

Further while determining 'Zero date' of any project needs to be defined based on 'from the start date of cash expenditure' and should not be guided by 'from the date of investment approval'. So, while determining the IDC component, only delay attributable due to project developer only to be taken into account. The project developer should not be penalised unduly by not allowing IDC/IEDC components, for delay reasons due to various other factors like land acquisition, ROW, statutory clearances etc which are not under control of project developer.

Moreover, Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, also called Land Acquisition Act 2013 came into existence w.e.f. 1st January, 2014. The new act envisages direct purchase of land by the developer from the owner. This is a very cumbersome and long drawn process. This has resulted in considerable delay in acquisition of project land of large quantity for Greenfield project. Therefore, it is quite logical that the delay on this score cannot be termed as "Controllable" as the project developer has got no control over the same.

Therefore, the delay on account of land acquisition for Greenfield Projects may be treated as "Uncontrollable" parameter in determining the quantum of delay. Cost overrun for such delay shall not be considered in calculation of allowable IDC for the project.

Further, installation of equipment for FGD, cost of compliance of Pollution norms will have the impact over project cost resulting in variation of overall project cost depending on whether same is installed or not.

Therefore, DVC proposes to determine the capital on the basis of prudence check as per present practice.

## **12.0 Renovation and Modernization**

### **Comments of DVC against Point no. -12.7:**

The existing practice of keeping both the option as stated in 12.6 needs to be continued.



### **13. Financial parameter**

#### **Comments of DVC against Point no. -13.2:**

ROE, O&M and Int. of WC are to be computed on normative basis but Interest on Capital at actual rate on normative Loan

If any change is decided that should be on new projects with COD after 31-03-2019. Existing projects with COD within 31-03-2019 having financial tie ups should not be changed.

### **14.0 Depreciation:**

#### **Comments of DVC against Point no. -14.7:**

For accounting purpose, DVC follows the straight line method of Depreciation and the Rate of depreciation is as per GOI and approved by C&AG. CERC has also allowed DVC to charge depreciation at rate prescribed by GOI in the existing tariff regulation which needs to be continued.

### **15.0 GFA (Gross Fixed Asset) approach**

#### **Comments of DVC against Point no. -15.3:**

Existing GFA approach may be continued for the coming tariff period 2019-24.

### **16.0 Debt: Equity Ratio**

#### **Comments of DVC against Point no. -16.5:**

This will lead to higher dependency on loan and will increase interest cost. With uncertainty in power demand financing will be difficult. Depreciation will be insufficient to repay the loan. Debt Servicing Coverage Ratio and Debt Equity Ratio will be stringent and Security coverage against the loan with tangible assets may be difficult.

Therefore, existing norms of 70:30 needs to be continued.

### **17.0 Return on Investment**

#### **Comments of DVC against Point no. -17.4:**

Existing ROE method needs to be continued.

## 18.0 Return on Equity (ROE)

### Comments of DVC against Point no. -18.8:

**18.7 (a)** According to CEA the capacity addition is no more a major challenge and adequate installed capacity exists to meet the demand for the next 8 to 10 years. The existing power projects are suffering the underutilization of the plant capacity because of the non-existence of PPA for which the present generating station are not fully tied up. Thus the generating stations are unable to recover its full AFC (including ROE) through the power sale to the beneficiaries under 62A of Electricity Act. Under this circumstances, it will not be prudent for any downward revision of ROE for the existing Generators. Moreover, because of availability of surplus generation, the normative benchmark of NAPF may be reviewed for downward revision for effective realization of ROE.

However for new generators the change in ROE may discourage the developer for setting up new projects under power market scenario of surplus capacity.

**18.7 (b)** For the Generating sector, the gestation period from investment approval up to COD is much higher than the Transmission sector. The ROE is only applicable after the declaration of COD. Thus, it is prudent that the Generating sector and transmission sector may have different ROE depending upon the normative completion time of the project.

**18.7(c) & (d)** Introduction of additional incentive to storage based hydro generating station project and different rates of return for thermal and hydro project appeared to have merit for inclusion in Tariff regulation 2019-24.

**18.7(e)** The present practice on post-tax return on equity needs to be continued.

**18.7(f)** Additional ROE for timely completion of the project may be determined depending upon the unit size of the generator, size of the project length of line in transmission project, geographical terrain, MVA capacity & no of bays of substation.

**18.7(g)** Delay of the project is caused due to various factors like ROW problem, acquisition of the land, forest clearance, statutory permission from different regulatory bodies/entities etc which are beyond the control of developer. If the Capital cost is determined based on benchmarked capital cost, then reduction on return on equity in case of delay of the project may be examined on case to case basis so that the developer may not be unduly punished. Further, Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, also called Land Acquisition Act 2013 came into existence w.e.f. 1st January, 2014. The new act envisages direct purchase of land by the developer from the owner. This is a very cumbersome and long drawn process. This has resulted in considerable delay in acquisition of project land of large quantity for Greenfield project. Therefore, it is quite logical that the delay on this score cannot be termed as "Controllable" as the project developer has got no control over the same.

Therefore, the delay on account of land acquisition for Greenfield Projects may be treated as "Uncontrollable" parameter in determining the quantum of delay. Cost overrun for such delay shall not be considered in calculation of allowable IDC for the project.



## **19.0 Cost of Debt**

### **Comments of DVC against Point no. -19.6:**

19(a) For the arrangement of the debt from the market the project developer usually issues the bond or takes the loan from the financial institutions. The interest to be paid by the project developers mostly depends upon the credit rating of the developer besides the other parameters. Therefore, the introduction of normative cost of debt and differential cost of debt for new transmission and generating project may dissuade the developer for taking up any project. Thus the existing practice of determination of cost of debt based on actual weighted average of rate of interest and normative loan needs to be continued.

19.5(b) The existing incentives for restructuring or refinancing of debt may be modified so that savings on interest by refinancing of debt, may be shared between the beneficiaries and investor at 60:40 ratio so that developer may be additionally encouraged.

19.5 (c) Cost of debt should be based on actual weighted average rate of interest on normative loan. The existing incentives for restructuring or refinancing of debt needs to be continued.

## **20.0 Interest on Working Capital**

### **Comments of DVC against Point no. -20.4:**

20.3(a) The present practice may be continued.

20.3(b) The present practice may be continued. Additionally consideration of stock of lime stone for two months should be considered within part of Working capital.

20.3 (c) & (d) The present practice for calculation of the maintenance spare as a percentage O&M expenses for determination of IWC may be continued.

For old and vintage Generating Station /transmission systems, frequent tripping and breakdown requires a high inventory of spare. Therefore it is suggested that instead of 20% OF O&M the limit may be enhanced 25% of the O&M for calculation of the IWC.

20.3 (e) The reasons of low PLF of the generating station is attributed to surrender of power by beneficiaries during off-peak period which is difficult to forecast.

However, to maintain 24X7 power supply as per GOI policy, the utility has to take short term loan from financial institution for maintain target availability.

Therefore, it will not be prudent to delink IWC from target availability.

Determination of W. Capital: Existing component of WC and method may be continued and in addition for FGD compliance, stock of lime and a percentage of O&M for FGD related stores & spares need to be considered.

## 21.0 O&M

### Comments of DVC against Point no. -21.8:

#### 21(a) & (b)

- Installation of pollution control system, installation of FGD system, introduction of NOx control system, up-gradation of ESP, mandatory use of treated sewage water by thermal plant, will increase the O&M cost and is to be taken care of at the time of determination of O&M.
- With the integration of renewable energy, the Generating station will undergo flexible operation (frequent ramping up & down) resulting in higher wear and tear – needs to be addressed with higher O&M cost.
- As per MOEF guideline, power stations are mandated to transport pond Ash at their own cost up to 100 KM and share half of the cost up to 300 KM. This cost needs to be reimbursed to the power station over and above O&M cost.
- Water charges needs to be allowed separately.
- The hike in employee's salary due to pay revision (approx. 14.5%) as per 7<sup>th</sup> CPC and hike in contracted labour wages (approx. 40%) as per directives of central government needs to be taken care in O&M cost.
- For standalone unit, higher O&M expenditure needs to be considered.
  
- **Additional O&M for DVC**

Present practice for determination O&M is normative which does not take care of additional cost incurred by DVC due to other office expenses (subsidiary activities mandated by DVC Act), Pension & Gratuity Fund, additional expenditure due to Mega Insurance & CISF.

**Pension & Gratuity Fund :** DVC as a statutory body is required to maintain appropriate scheme for meeting terminal benefits. The terminal benefits of employees are the pension (wherever the appointment of employees is on pension basis), gratuity, contributory provident fund i.e. CPF (wherever the employment of the employees is on Provident Fund contribution basis instead of pension). In addition to the above the General Provident Fund (GPF) Scheme applicable to all who are under pension scheme. The Employees Provident Fund and Miscellaneous Provisions Act, 1952 provides for the manner in which the Provident Fund Scheme needs to be administered. As the above Act, DVC is maintaining the Provident Fund both CPF and GPF in respect of each of the employees with individual account of the employees duly reflecting (a) the contribution apportioned to such employees, (b) apportionment to such employees, apportionment of the interest earned on the money invested from the Provident Fund Scheme in approved securities and (c) also contribution made by the employees to the GPF. Such contributions are maintained in a separate account of each of the employees as per applicable scheme.

The contribution to the Pension and Gratuity Trust are made based on actuarial valuation undertaken from time to time by an actuary appointed for the purpose.



**Hence Additional O&M needs to be considered for DVC along with the normative one while determining O&M.**

**Recovery of additional O&M should not be linked with availability.**

- Increment in normative O&M may be based on WPI & CPI indexation.

(e) It is observed that low voltage system is more fault prone, hence O&M requirement is more. Hence while framing the norms for O&M, DVC proposes to introduce some weightage factor depending on voltage class while arriving O&M rate so that higher O&M charges for the system can be addressed.

Instead of considering the transformation capacity (MVA) only, the O&M expenses of transmission substation is proposed to be of two parts -

(1) O&M expenses due to basic infrastructure of the substation (like Control Room, Battery etc) – to be considered as Fixed expenses and

(2) O&M expenses due to Transformer/Reactor and bays etc. – to be considered in linear scale

Both (1) & (2) is proposed to be weighted with their respective service life.

Additionally, Compare to the Earth-wire, O&M cost of OPGW is much higher. Hence, O&M expenses in respect of OPGW are proposed to be considered in addition to the power line O&M cost.

DVC acts as a Generator as well as Transmission and Distribution licensee. The transmission lines of DVC has been declared as 'Intra state Transmission Line' as per the direction of APTEL. The consumer feeders, Step down transformers, transmission lines which are directly emanated from the generating stations the O&M expenses of the above bays should be considered additionally for determination of Transmission O&M.

(f) Proposal for introduction of separate norms for O&M expenses on the basis of vintage of generating station and the transmission system is agreed to. As per MOEF circular, power station are mandated to transport pond ash at their own cost up to 100 KM and share half of the cost up to 300 KM. This cost needs to be reimbursed to the power station over and above O&M expenses.

(g) Gain from the income of other business , namely telecom business, fly-ash may be considered in 60:40 ratio in order to encourage optimum utilization of asset, for arriving at the O&M cost.

“As an alternative, the O&M expenses may need to be worked out on the basis of MVA capacity instead of individual components else some weightage may be accorded to different components” --- The Station having same Transformer capacity with different bay numbers (Transmission Line & Outgoing feeder) shall have same O&M cost.

Presently, normative O&M for transmission line is determined based on 'no. of conductor'. However, higher O&M required for 'low voltage line' has not been taken care off in the present Regulation for 2014-19 period.

Annual escalation in O&M should not be at fixed %, it may be linked with suitable annual Index prevail at the last month of the previous FY.

Presently O&M expenses have been specified on per MW basis for generation and per bay basis for the transmission system irrespective of age of generating stations /bay. In regulation 7.3.3. Commission has accepted that O&M cost of old units could be high. Therefore, it is proposed to consider a relaxed norms in respect of O&M expenses for older units.

## **22. Fuel – Gross Calorific Value (GCV)**

### **Comments of DVC against Point no. -22.8:**

22.8 (a) Generating companies do not have control over grade / GCV of Coal received at the station. GCV loss between 'as billed' and 'as received' for Generating station may be specified on normative basis. However, booking of loses to Coal supplier or Railways may be taken up with respective ministry of Coal and Rail by CERC as per section 79(2) of Electricity Act 2003. Since Generating company has no control over coal supplier and railway so they can not directly book losses to coal company and railways.

The stone below 250 mm size are not considered as stone by coal company as per present FSA. Quantity of Stone should be adjusted from the weight of the coal supplied by colliery/coal companies irrespective of the size. FSA needs to be modified to that extent.

(b) GCV measurement should be on "As Fired Basis" in place of "As received Basis".

Regarding sampling methodology, third party sampler needs to be continued. Coal sample for Rail Borne coal is to be collected from bottom in place of existing arrangement from top of the wagon due to the presence of OHE line.

### **Comments of DVC against Point no. 22.9 (Regarding GCV measurement):**

- a) Generating companies do not have control over grade / GCV of Coal received at the station.
- b) GCV measurement should be on "As Fired Basis" in place of "As received Basis".
- (c) There are grade slippages at loading & unloading ends with respect to billed grades.
- (d)GCV deteriorate during transit from Mines end to unloading end; storage and handling at unloading end etc.
- (e) Coal sample for Rail Borne coal is to be collected from bottom in place of existing arrangement from top of the wagon due to the presence of OHE line.

## **23. Fuel - Blending of Imported Coal**

### **Comments of DVC against Point no. -23.6:**

At present DVC is not taking imported coal. Hence, no comments.



## **24. Fuel - Landed Cost**

### **Comments of DVC against Point no. -24.6:**

- (a) The source of coal, quality, distance, mode of transportation are not fixed and beyond the control of DVC. Hence, DVC is agreed to the option provided at 24.5 (a) i.e all cost component of the landed fuel is to be allowed as part of the tariff. The Landed cost of fuel comprise of as detailed below. To arrive at the landed cost, the following component needs to be allowed as part of tariff as per the option 24.5 (a):
- (i) Basic Coal price plus all statutory charges and taxes
  - (ii) Freight Charge
  - (iii) Loading and liaison cost
  - (iv) Unloading cost
  - (v) Deployment of locos for haulage of wagons.
  - (vi) Sampling and testing charges at loading and unloading point by third party
  - (vii) Fuel lab setting up charges& operation cost
  - (viii) Security engagement for theft prevention/pilferage
  - (ix) Rail track maintenance cost
  - (x) Coal stock-Yard management

Provision is to be kept for inclusion of Performance Incentives, Supplementary Bills, Interest bill etc which are parts of coal cost but received at a later stage.

- (b) The Generating station has no control over quality of coal. The matter may be taken up in tandem with coal ministry to formulate any normative value. Otherwise, it may be a disaster.

## **25. Fuel - Alternate Source**

### **Comments of DVC against Point no. -25.3:**

DVC has been allocated Coal Blocks which are difficult to operate and hence considered not suitable for production by CIL. So Landed cost of coal produced/ mined from these coal blocks may be higher than the notified price of CIL for same Grade. DVC requests to consider the landed cost, at actual, for passing on to the consumer.

## **26. Operational Norms**

### **Comments of DVC against Point no. -26.3.19:**

#### **Station Heat Rate**

The determination of Station Heat Rate may be grouped into as per the age of the Generating stations. Moreover, due to integration of renewable energy and low PLF due to surrender of power by beneficiaries and shortage of coal, the Generating station has to run at the Technical minimum level or sometimes lower than that. So design heat rate will increase by 5% to 6%. In order to compensate above condition, 4% to 5% additional margin over the existing allowable heat rate needs to be considered.

Appeal for Station Heat Rate for Koderma TPS needs to be considered at par with Durgapur Steel TPS having similar units. Station Heat rate of Koderma TPS has been allowed lower than that of Durgapur Steel TPS in spite of having identical design at both stations (detail justification is annexed herewith).

#### **Specific Secondary Fuel Oil Consumption**

Due to integration of renewable energy and low PLF due to surrender of power by beneficiaries and shortage of coal, the Generating station has to run at the Technical minimum level or sometimes lower than that with the help of oil support. Therefore, normative value as specified below may please be considered:

For 600 MW/500 MW/ 250 MW: 1.0 ml/KWH

For 210 MW: 1.5 ml/KWH

#### **Auxiliary Energy Consumption**

Due to integration of renewable energy and low PLF due to surrender of power by beneficiaries and shortage of coal, the Generating station has to run at the Technical minimum level or sometimes lower than that or reserve shut-down.

With the above back-drop, APC should be considered based on followings:

- Station comprising of two or more units-  
210/250 MW set – 10.5 %  
500/600 MW – 6 %.
- Station comprising of single unit  
210/250 MW set – 10.5% +0.5%  
500/600 MW – 6 % +0.5%.
  
- Operation of FGD system will further increase station APC to the tune of 1.5%.
- Colony power consumption should be considered over and above APC % specified above.

Appeal for relaxation of APC norms for Mejia TPS DVC Unit-1 to 4 (4x210 MW) additionally 1.5% over the normative APC as proposed above (detail justification is annexed herewith)

#### **Normative Annual Plant Availability**

- As power generating company has no control over Coal Company and railway, loss of PAF due to shortage of coal should be considered in recovery of fixed charge.
  
- Fixed charge recovery should not be based on half yearly or quarterly PAF because essentially there will be some plant maintenance schedule and fixed charge recovery will be hampered during that period. So present practice of recovery of fixed charge based on annual PAF should continue.

#### **Transit & Handling losses**

A regulatory option could be that the generating station shall only pay for coal “As Received” at the plant plus normative transmission loss of GCV and quantity as per CERC norms.



However, the above proposition is subject to the acceptance of the coal company. CERC may take up the matter with concerned ministry.

#### **Thermal Generation (Coal washery rejects based)**

No comments

#### **Transmission System: Transmission Availability Factor**

Existing approach for computation of Transmission system availability may be continued for 220 kV and downward voltage level and weightage factors for transformer and reactor may be applied for higher voltage level.

DVC T&D network of DVC consists of system starting from 11 kV to 400 kV. The low voltage system is fault-prone hence subjected to low availability.

26.5.5 (d) The present practice needs to be continued.

#### **Transmission Losses**

The transmission losses are dependent loading of line/transformer, ambient condition type of load.

Benchmarking of loss may be limited to 5%.

#### **Hydro Generation**

Present practice needs to be continued.

### **27. Incentive**

#### **Comments of DVC against Point no. -27.6:**

27.5

(a) Present practice may continue.

(b) Different incentive for off peak and peak period for thermal and hydro generating stations may be thought off.

(c) Incentive and disincentive mechanism of compensation for operating plant below norms as per present practice may continue.

(d) Existing approach for computation of Transmission system availability may be continued for 220 kV and downward voltage level and weightage factors for transformer and reactor may be applied for higher voltage level.

DVC T&D network of DVC consists of system starting from 11 kV to 400 kV. The low voltage system is fault prone hence subjected to low availability.

## **28. Implementation of Operational Norms**

### **Comments of DVC against Point no. -28.2:**

Since the AFC is not being firmed up w.e.f. 1st April of Tariff period, the new operational norms with AFC as on last date of preceding tariff period is continued till the final order of tariff for the new tariff period is issued by CERC. So, implementation of new norms with old AFC as determined is not justified. Therefore operational norms should be implemented from the date of issuance of tariff order for new tariff period.

## **29. Sharing of gains in case of Controllable Parameters**

### **Comments of DVC against Point no. -29:**

29.1 Sharing of gain may be continued as per the present ratio between the Generating companies and beneficiaries.

29.3 Sharing of gain may be made after annual reconciliation. Annual reconciliation mechanism may either be as per the guideline procedure of CERC or as per the mutually agreed basis.

## **30. Late Payment Surcharge & Rebate**

### **Comments of DVC against Point no. -30:**

30.1 Due to the financial constraint by most of the DISCOM, the introduction of MCLR for late payment surcharge may encourage for defaulting the payment beyond 60 days. Late payment surcharge being penal in nature need to be maintained at higher rate and not to be linked with MCLR.

DVC reserves a strong contrary view against such present proposition.

Therefore, the present regulation of late payment surcharge at the rate of 1.50% per month for delay in payment beyond a period of 60 days from the date of billing should be continued.

30.2 The Valid mode of presentation of bill may be introduced. Moreover, rebate is to be provided if the payment credited to bank account within two bank working days of presentation of bill.

Priority order for adjustment of payment against the statutory duties, late payment surcharge, old dues and current dues may be specified in the regulation.

## **31. Non-Tariff income**

### **Comments of DVC against Point no. -31:**

Present regulatory frame work does not account for non-tariff income for reduction of operation & maintenance expenses. DVC reserves a strong contrary view against such present proposition.



As per guide lines framed by MOEF GOI, regarding sale of Fly Ash , a separate fund has to be created with the sale proceeds of fly ash and to be earmarked for utilisation of specific purpose till 100% utilisation of fly ash is achieved. Thus sale of Fly ash cannot be treated as non-tariff income for adjustment with O&M.

In case of sale of asset, it is suggested to adjust the amount realised on sale of assets with the residual value of asset instead of adjustment with O&M Expenses because while de-capitalization, the historical gross value of the old asset is subtracted from the capital cost. Hence, in case of sale of asset, since de-capitalisation of the asset disposed has already been considered by above (i.e. subtracting the gross value of the old asset from the capital base), hence further adjustment with the amount from sale proceeds with O&M cost should not be considered.

Income generated from investment made from return on equity may be allowed to retain by the generators

### **32. Standardization of Billing Process**

#### **Comments of DVC against Point no. -32:**

32.1 Standardization of Billing process is agreed.

### **33. Tariff mechanism for Pollution Control System (New norms for Thermal Power Plants)**

#### **Comments of DVC against Point no. -33:**

In line with the notification of the MOEF, revised environmental and emission norms require installation of FGD system, modification of ESP etc. Cost involved for both in new and old plant involves costs both in the capital and revenue in nature. Therefore it is suggested to have specific regulation to recover the cost as under in proposed tariff regulations.

- a) Capital cost (Interest on Loan ,ROE and depreciation)
- b) Consumables in Operation.
- c) O&M expenses for FGD including disposal of Gypsum.

### **34. Renewable Generation by existing Thermal Generation Stations**

#### **Comments of DVC against Point no. -34.4:**

For Renewable Generation by existing Thermal Generation Stations, installation of Renewable project is to be made at different location and pool the generation capacity on external basis beyond the delivery point. In both the cases, the annual fixed charges for thermal project and renewable project may be determined separately, based on separate set of tariff principles.

### **35. Commercial Operation or Service Start date**

#### **Comments of DVC against Point no. -35.5:**

The following shortcomings faced during present regulatory period are required to be addressed while framing methodology for declaration of COD:-

- (i) The fully commissioned asset is required to be charged at appropriate voltage level for maintaining the healthiness of the equipment and as an antitheft measure; hence, handing over of any commissioned transmission element to O&M wing is essential for proper maintenance and upkeep.
- (ii) In view of the above technical reason, the capital, which is lying on CWIP before commissioning, is required to be transferred to 'Asset' and is handed over to O&M subsequently.
- (iii) Related expenditure (like IDC, IEDC etc) will increase, if COD is declared on put-to-use basis, which in turn increases total Project cost due to loading of other's obligation.
- (iv) For the similar reason, withheld of final payment is not also possible/justified till declaration of COD.

Hence, norms for declaration of 'Commercial operation' may be specified in such way that Project developer should not be penalised (by non- allowance of IDC/IEDC for delay part, non-admission of ROE, debt obligation, O&M etc) for non-availability of load or evacuation system and not commissioning of upstream /downstream transmission asset.

Further, determination the 'Zero date' of any project needs to be defined based on 'from the start date of cash expenditure/flow' and should not be guided by 'from the date of investment approval' so far determination of tariff is concerned.

### **36. Energy Storage System**

#### **Comments of DVC against Point no. -36.7:**

Deployment of Energy Storage System connected with Grid is required with the integration of variable renewable energy sources. Deployment of grid storage is at a nascent stage and there is no policy or regulatory framework as regards to storage.

As such Commercial mechanism in tandem with operational mechanism of Energy Storage System is not clear from the consultation paper.

### **37. Alternative Approach to Tariff Design**

#### **Normative Tariff by Benchmarking of Capital Cost**

#### **Comments of DVC against Point no. -37.6:**

It was observed that CERC has arrived average capital cost as 6.65 Cr/MW for thermal power plant during the period 2008-13 by taking a sample size of 30 and 5.5 Crs./MW for Hydel power station during the period 2000-2007 taking a sample size of 20. It shows that standard deviation for determination of average capital cost was as high as 2.44 Cr/MW.



It is not clear that while taking the sample size of so small number for generating station both thermal and hydel, whether the factors like Land availability, geographical terrain, socio-economic conditions of the place of the power station, political condition, wind zone, seismic zone, compensation, ROW etc. was taken into account. Without considering all the above factors, on case to case basis any generalized determination of benchmark capital cost will be detrimental for project viability both for thermal & hydel.

Moreover, estimation philosophy/base may differ from utility to utility. Standardization of BOQ, specification of equipment, estimate format (including over-head charges, compensation, IDC, contingency etc) shall differ. Over and above, a schedule of rate (for supply part , erection part) in line with DSR of Civil works needs to be formulated with a provision to incorporate expenditure on case to case basis based on different external conditions such as land, geographical terrain, wind zone, etc. The schedule rate should be updated on continuous basis based on market data.

Further while determining 'Zero date' of any project needs to be defined based on 'from the start date of cash expenditure' and should not be guided by 'from the date of investment approval'. So, while determining the IDC component, only delay attributable due to project developer only to be taken into account. The project developer should not be penalised unduly by not allowing IDC/IEDC components, for delay reasons due to various other factors like land acquisition, ROW, statutory clearances etc which are not under control of project developer.

Therefore, DVC proposes to determine the capital cost on the basis of prudence check.

#### **Normative Tariff by fixing AFC as a percentage of Capital Cost**

##### **Comments of DVC against Point no. 37.9:**

In the consultation paper it has been stated that the mean of AFC as a percentage of capital cost as 22.55% and standard deviation is as high as 7.17% which means that AFC as a percentage of capital cost can vary up to as high 29.72 % and as low as 15.38%. Unless and until the standard deviation for determining the AFC as a percentage of capital cost can be brought down at a realistic figure , such proposition may be detrimental for the viability of the project life.

Therefore, DVC proposes that determination of AFC may be made by prudence check of all components of AFC as per prevailing practice.

#### **Normative Tariff by fixing each component of AFC as a percentage of total AFC**

##### **Comments of DVC against Point no. -37.17:**

##### **Depreciation:**

For accounting purpose, DVC follows the straight line method of Depreciation and the Rate of depreciation is as per GOI and approved by C&AG. CERC has also allowed DVC to charge depreciation at rate prescribed by GOI in the existing tariff regulation which needs to be continued. Therefore, depreciation rate cannot be normalised with other utility.

**O&M:**

Present practice for determination O&M is normative which does not take care of additional cost incurred by DVC due to other office expenses (subsidiary activities mandated by DVC Act), Pension & Gratuity Fund, additional expenditure due to Mega Insurance & CISF, sudden hike in employee cost due to pay revision and the wage hike of casual labour as per the direction of GOI. Moreover, the O&M cost does not consider the vintage of substation/line. Due to (1) With the integration of renewable energy, (2) low PLF due to surrender of power by beneficiaries, the Generating station will undergo flexible operation (frequent ramping up & down) resulting in higher wear and tear – which causes higher O&M cost. Thus no part of O&M cost is fixed.

**Interest on Loan:**

For the arrangement of the debt from the market the project developer usually issues the bond or takes the loan from the financial institutions. The interest to be paid by the project developers mostly depends upon the credit rating of the developer besides the other parameters. Therefore, it is not fixed and cannot be normalised.

**IWC:**

One of the component of IWC is one month's O&M cost which is not fixed. Further, O&M cost in future will depend upon the compliance of the implementation of FGD and other pollution control norms, stock of lime and FGD related stores& spares etc. Further, for old and vintage Generating Station /transmission systems, frequent tripping and breakdown requires a high inventory of spare which also varies based on age of the Generating Station /transmission systems.

Therefore, DVC proposes that determination of AFC may be made by prudence check of all components of AFC as per prevailing practice.

**37.20 Principles of Cost Recovery- Approach towards Multi-Part Tariff****Comments of DVC against Point no. -37.21:**

It is not clear whether 95% PAF target for the recovery of 20% of AFC will be allowed on monthly basis for 4 months or on cumulative basis for 4 months. From past data, it has been observed that coal supply during rainy season got disturbed which is not at all under the control of Generator. So, 95 % availability will not be possible during rainy season. So, peak period should not be considered during rainy season.

Hence, Recovery of basic fixed charge should be ensured based on cumulative PAF either on yearly basis or peak/off-peak period.

However, DVC proposes that recovery of AFC (including incentive) may be formulated based on the formula given in 2009-14 regulation.



### **38 Transparency in Billing and Accounting of Fuel**

#### **Comments of DVC against Point no. 38:**

The Generating station has no control over quality of coal.

Hence, all cost component(Landed cost of fuel should comprise of all expenses incurred on fuel up to Track hopper/ Wagon tippler)as detailed below to arrive the landed fuel cost needs to be allowed as part of tariff:

- (i) Basic Coal price plus all statutory charges and taxes
- (ii) Freight Charge
- (iii) Loading and liaison cost
- (iv) Unloading cost
- (v) Shunting Loco charges
- (vi) Sampling and testing charges at loading and unloading point by third party
- (vii) Fuel lab setting charges
- (viii) Security engagement for theft prevention/pilferage
- (ix) Rail track maintenance cost
- (x) Coal stock-Yard management

Further, provision is to be kept for inclusion of Performance Incentives, Supplementary Bills, Interest bill etc which are parts of coal cost but received at a later stage.

### **39 Relaxation of Norms**

#### **Comments of DVC against Point no. -39.2:**

Relaxation norms as exist in present regulation may be continued. Regulation for special provision allowed for DVC may also be continued in the coming tariff regime.

### **40 Merit Order Operation**

#### **Comments of DVC against Point no. -40.3:**

Present practice of consideration of merit order operation on variable cost may please be continued.

### **41 Application for Tariff Determination: Review of Process in Case of Transmission System**

#### **Comments of DVC against Point no. -41.4:**

41.3 single petition may be admitted for all the individual elements which have been commissioned within a year. Then annual fixed charges may be determined on consolidated basis based on capital cost of individual elements combined with the Capital base of Existing System.

## Justification for relaxation for APC norms of MTPS U#1-4 and heat rate of KTPS

### Issue-I: Petition to CERC for relaxation of APC Norms of MTPS U#1-4

*Higher Auxiliary Power Consumption than Normative APC by 1.5 % was noted with best operating condition against CERC Normative PLF of 85 % for MTPS U#1-4. MTPS U#1-3 was designed and commissioned much before Regulatory Regime, 2003. MTPS U#4 design stage was completed before Regulatory Regime, having lower energy efficient auxiliaries.*

Status of COD of MTPS Units

Station	Location	Unit	Capacity (MW)	COD
MTPS	Dist – Bankura, West Bengal	U#1	210	December, 1997
		U#2	210	March, 1999
		U#3	210	September, 1999
		U#4	210	February, 2005

### High APC of U#1-4

- MTPS U#1-3 was designed and commissioned much before Regulatory Regime of 2003. Even MTPS U#4 although commissioned in 2005, design stages was completed before Regulatory Regime. Units were commissioned with the technology having lower energy efficient auxiliaries compared to the current state of the art High Efficient Auxiliaries.
- Since inception, auxiliary power consumption of MTPS U #1- 4 is much higher compared to CERC Benchmark of 9 %. Unit-wise APC vs. PLF % data since last 5 years was plotted with the best operating condition & APC Norms curve was drawn against a PLF range from CERC Normative 83 % to 100 % PLF (**Graph attached at Annexure I & II**).

Auxiliary Power Consumption in the range of 10.5 - 10.6 % was noted with best operating condition against CERC Normative PLF of 83 % for MTPS U#1-4.

- Equipment wise performance was tracked against characteristic curve of major HT Drives which contributes almost 85 % of total Auxiliary Power. Power consumption of all HT drives at duty point as per HBD (100 % TMCR & 83 % TMCR) and OEM performance datasheet was tabulated. Common Auxiliary loading including CHP power consumption was taken from existing energy monitoring system (E-watch) at that operating range.

It can be concluded that even with best operating conditions as per OEM condition curves, APC of these units cannot be achieved below 10.5 % at CERC Normative PLF of 83 %.

APC Norms curve of MTPC U#1-4 drawn from last 5 yrs. data almost converged with the derived value of APC as per OEM Condition curve at the duty point.

Therefore, average APC of MTPS U#1-4 can not be brought below 10.5 % with the CERC Normative PLF of 83 % (**Annexure-III**).



**Major areas of APC excursion of MTPS U#1-4 compared to CERC limit of 9 %**

- **Tube Mills:** These mills were selected with the consideration of less maintenance, more fineness, no rejects, high throughput even with varying and inferior coal quality & other technical advantages. Due to robustness, these mills consume high Power which is almost 900 KW high compared to Raymonds Bowl Mills (XRP -763 or XRP -803 popularly used in 210 MW units), leaving no operator's margin to improve upon APC at full load or even at part load condition.
- **PA Fans:** Hot PA Fans with IGV control at MTPS U#1-4 are less efficient (ranging from 33 - 60 % efficiency at different operating condition as per characteristic curve) compared to the high efficient (more than 75 %) current state of the art blade pitch control Cold PA Fans (as per characteristic curves).
- **FD Fans:** FD Fans with IGV control at MTPS U#1-4 are less efficient (45 – 50 %) compared to the blade pitch control FD Fans having efficiency more than 80 %. Moreover, hot PA system in U#1-4 causing additional power consumption in FD Fans due to handling of additional air.
- **CW Pps at U #1- 3:** Total Condenser Cooling Water requirement is 28000 Ton / Hr. SSW water requirement is 4000 Ton / Hr. taking water from CW System. Capacity of each CW Pump - 12750 T / Hr. Hence, three CW Pumps are required to run to cater required CW Flow at TMCR for achieving design temperature drop across condenser after supplying SSW requirement. Additional pumping loss is to the tune of 5000 Ton / Hr. which corresponds to around additional power consumption to the tune of 440 KW (**Annexure-IV**).
- APC comparison of MTPS U # 1-4 has been done with NTPC Unchanhar of same capacity (210 MW) having tube mills.

Major variance in Auxiliary Power as per Characteristic Curve of PA Fans, FD Fans, CW Pumps of MTPS U#1-4, NTPC Unchanhar, attached in **Annexure-IV&V**).

Datasheet of the equipment is attached in **Annexure-VI**.

The following variance emerged out which is tabulated below:

**Variance Analysis of APC of MTPS U#1-4 (210 MW) with NTPC Unchanhar- Stage II (210 MW)**

Major Equipment	Equipment Power consumption at TMCR (KW / Av. Amps.)		Total Power savings in KW	Remarks
	MTPS U#1-4 (210 MW)	NTPC Unchanhar Stg II (210 MW)		
PA fan	701 / 83	285/ 32	832	<ul style="list-style-type: none"> <li>✓ High efficient Blade Pitch control Cold PA Fans in NTPC Unchanhar.</li> <li>✓ Low Efficient IGV Hot PA in U#1-4. (Characteristic curve plotted in Annexure-V)</li> </ul>
FD Fan	720/ 81	313 / 34	814	<ul style="list-style-type: none"> <li>✓ High efficient Blade Pitch FD Fans in NTPC Unchanhar.</li> <li>✓ Low Efficient IGV Control FD in U#1-4. Moreover, hot PA system in MTPS U#1-4 causes additional power consumption in FD Fans. (Characteristic curve plotted in Annexure-V)</li> </ul>
CW Pump	3197	900 x 2	1397	<ul style="list-style-type: none"> <li>✓ High condenser surface area at NTPC Unchanhar compared to MTPS, U#1-4.</li> <li>✓ Total CW Flow at MTPS, U#1- 3 is 37000 T/ Hr. (28000 CW Flow+4000 SSW Flow), while flow of individual CW pump is 12750 T / Hr. at MTPS U#1- 3. Hence, three CW Pumps is required to run to cater required CW Flow at TMCR for achieving design temperature drop across condenser. (Characteristic curve plotted in Annexure-IV)</li> </ul>
Total Power savings (KW)			3043	
Installed Capacity (MW)			210	
Total Power savings (MW)			3.043	
Total APC Savings (%)			1.45	



**Note: Power saving calculation based on considering (Ref: Annexure-VI)**

Total Power savings for two nos. PA Fans & two nos. FD Fans at 100 % TMCR.

Average of Total power savings for three nos. CW Pp (MTPS U#1-3) & two nos. CW Pp (MTPS U#4)

CW Pp Total Power cons. U#1-3 = 9918 KW

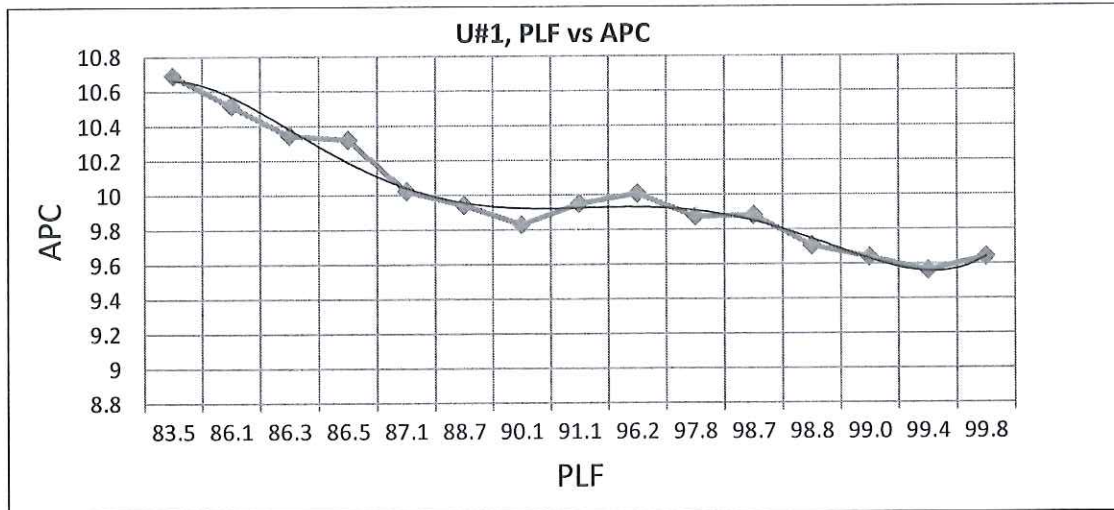
CW Pp Total Power cons. U # 4 = 2868 KW

Av. CW Pp Power Cons. / Unit = (9918+2868)/4 = 3197 KW

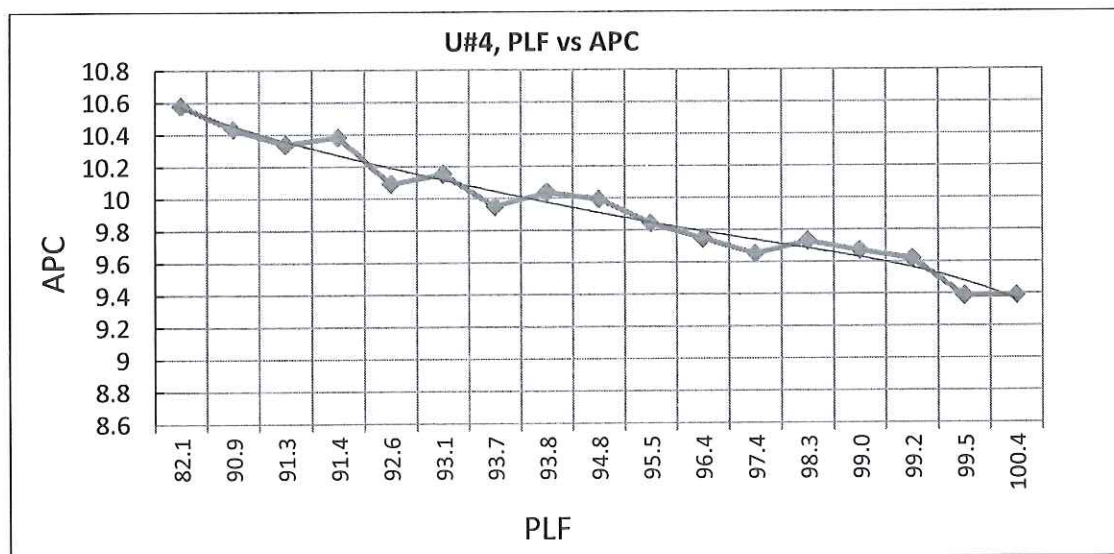
NTPC Unchanhar Condenser & CW Pp datasheet, MTPS U # 1-4 Condenser datasheet attached in **Annexure-VI**.

*With the above back drop, considering that there is no possibility for achieving existing APC Norms as per CERC even with best operating conditions, it is kindly requested to put the case file to honourable commission by Tariff Cell for relaxation of APC Norms of MTPS U#1-4 by 1.5 %.*

**Annexure-I**



**Annexure-II**



## U # 1-4 Operating data:

Parameters	UOM	U#1	U#2	U#3	U#4	Av. U#1-4
		Rated value at 83 % TMCR (CERC Normative) as per HBD & performance curve				
Load	MW	174	174	174	174	174
Total Air Flow	T/Hr.	705	578	578	578	610
PA flow	T/Hr.	197	197	197	197	197
PA Header Pr.	M / WC	660	660	660	660	660
MS Temp.	°C	535	535	535	535	535
CRH Temp.	°C	334	334	334	334	334
MS Flow	T/Hr.	514	514	514	514	514
CRH Flow	T/Hr.	464	464	464	464	464
Condensate Flow	T/Hr.	429	429	429	429	429
Feed Flow	T/Hr.	514	514	514	514	514
FD Fan Power Con. (A)	KW	574	574	574	574	574
FD Fan Power Con. (B)	KW	574	574	574	574	574
ID Fan Power Con. (A)	KW	1000	1000	1000	1000	1000
ID Fan Power Con. (B)	KW	1000	1000	1000	1000	1000
ID Fan Power Con. (C)	KW	----	----	----	----	----
PA Fan Power Con. (A)	KW	600	600	600	600	600
PA Fan Power Con. (B)	KW	600	600	600	600	600
PA Fan Power Con. (C)	KW	----	----	----	----	----
BFP Power Con. (A)	KW	2266	2266	2266	2266	2266
BFP Power Con. (B)	KW	2266	2266	2266	2266	2266
BFP Power Con. (C)	KW	----	----	----	----	0
CEP Power Con. (A)	KW	365	365	365	365	365
CEP Power Con. (B)	KW	----	----	----	----	----
CW Power Con. (A)	KW	1106	1106	1106	1438	3208
CW Power Con. (B)	KW	1106	1106	1106	1438	
CW Power Con. (C)	KW	1106	1106	1106	----	
CT Fan Power Con.	KW	480	480	480	480	480
Coal Mill Power Con. (A)	KW	1220	1220	1220	1220	1220
Coal Mill Power Con. (B)	KW	1220	1220	1220	1220	1220
Coal Mill Power Con. (C)	KW	----	----	----	----	----
Other Auxiliary (LT Loading) including CHP & BOP	KW	2800	2800	2800	2800	2800
Total Power Consumption (KW)	KW	18285	18285	18285	17842	18174
Load (MW) - 83 % TMCR	KW	172200	172200	172200	172200	172200
APC % at 83 % TMCR		10.62	10.62	10.62	10.36	10.55



**Annexure-IV****Power calculation Module by Flow matching with Characteristic Curve:****MTPS U#1-3 CW Pump**

Parameter	UOM	Value
Density	Kg / M <sup>3</sup>	1000
Flow (Input)	Ton/ Hr.	12750
Flow (calculated)	M3 / Sec	3.54
Header Pr.	M / WC	25.5
Work Done / S	KW	886
Efficiency	Dimensionless	0.855
Losses	KW	0
Input shaft Power	KW	1036
Motor Efficiency	Dimensionless	0.94
Input Motor Power	KW	1102
Input Voltage	KV	6.6
Power Factor	Dimensionless	0.78
Input Current	Amps	123.6

**MTPS U # 4 CW Pump**

Parameter	UOM	Value
Density	Kg / M <sup>3</sup>	1000
Flow (Input)	Ton/ Hr.	15500
Flow (calculated)	M3 / Sec	4.31
Header Pr.	M / WC	27
Work Done / S	KW	1140
Efficiency	Dimensionless	0.855
Losses	KW	0
Input shaft Power	KW	1333
Motor Efficiency	Dimensionless	0.93
Input Motor Power	KW	1434
Input Voltage	KV	6.6
Power Factor	Dimensionless	0.76
Input Current	Amps	165.0

**Annexure-V****Power calculation Module by Flow matching with Characteristic Curve:****MTPS U#1-4**

PA Fans with IGV (210 MW)		
Parameter	UOM	Value
Density	Kg/M <sup>3</sup>	0.72
Flow (Input)	Ton/ Hr.	124
Flow (calculated)	M <sup>3</sup> / Sec	47.6
Header Pr.	mm / WC	620
Work Done	NM / Kg	8445
Fan Efficiency	Dimensionless	0.455
Losses	KW	12
Input shaft Power	KW	649
Motor Efficiency	Dimensionless	0.93
Input Motor Power	KW	701
Input Voltage	KV	6.6
Input Current	Amps	83

**NTPC Unchanhar Stg. II (210 MW)**

Cold PA Fans with Blade Pitch Control		
Parameter	UOM	Value
Density	Kg/M <sup>3</sup>	1.09
Flow (Input)	Ton/ Hr.	124
Flow (calculated)	M <sup>3</sup> / Sec	31.60
Header Pr.	mm / WC	588
Work Done	NM / Kg	5290
Fan Efficiency	Dimensionless	0.71
Losses	KW	8.00
Input shaft Power	KW	265
Motor Efficiency	Dimensionless	0.93
Input Motor Power	KW	285
Input Voltage	KV	6.6
Input Current	Amps	32

**NTPC Unchanhar Stg. II (210 MW), Fan  
Model- APII- 17/ 12**

<b>MTPS U#1-4</b>		
<b>FD Fans with IGV</b>		
Parameter	UOM	Value
Density	Kg/M <sup>3</sup>	1.092
Flow (Input)	Ton/ Hr.	430
Flow (calculated)	M <sup>3</sup> / Sec	109.4
Header Pr.	mm / WC	260
Work Done	NM / Kg	2335
Fan Efficiency	Dimensionless	0.43
Losses	KW	12
Input shaft Power	KW	668
Motor Efficiency	Dimensionless	0.93
Input Motor Power	KW	720
Input Voltage	KV	6.6
Input Current	Amps	81

<b>NTPC Unchanhar Stg. II (210 MW)</b>		
<b>FD Fans with Blade Pitch</b>		
Parameter	UOM	Value
Density	Kg/M <sup>3</sup>	1.09
Flow (Input)	Ton/ Hr.	300
Flow (calculated)	M <sup>3</sup> / Sec	76.5
Header Pr.	mm / WC	310
Work Done	NM / Kg	2789
Fan Efficiency	Dimensionless	0.817
Losses	KW	8.00
Input shaft Power	KW	292
Motor Efficiency	Dimensionless	0.94
Input Motor Power	KW	313
Input Voltage	KV	6.6
Input Current	Amps	34.2

**NTPC Unchanhar Stg. II (210 MW), FD  
Fan Model- AP I - 18 /11**

**Annexure-VI**

<b>Area of diff.</b>	<b>MTPS U # 1-4</b>	<b>NTPC Unchanhar</b>
<b>Condenser</b>		
No. of Pass	Two	Two
No. of tubes	19218	16653
Cooling Water req. (T / Hr.)	28000	22500
Tube length (mm)	7500	11280
<b>CW Pp</b>		
Power Cons.(KW ) at duty point	1100 x 6 KW (U#1-3), 1434 x 2 KW U#4	900 x 2 KW
CW Pp Capacity (Ton / Hr.)	12750 x 03 Nos. (U#1-3), 15500 x 02 Nos. (U#4)	12750 x 02 Nos.



**Issue-II: Petition to CERC for relaxation of Heat rate norms of KTPS**

DSTPS (2x500 MW) & KTPS (2x500 MW) units are completely identical, but CERC Benchmark Heat Rate for KTPS is stringent than DSTPS.

**Design & Normative Heat rate are shown below:**

Name of The Station	DSTPS (2x500 MW)	KTPS (2x500 MW)
COD	U#1: 15.05.2012, U#2: 05.03.2013	U#1: 18.07.2013, U#2: 14.06.2014
Design Turbine cycle heat rate (kcal/kwh)	1944.5	1944.5
Design Boiler Efficiency (%)	83.23	83.23
<b>Design Unit Heat Rate (kcal/kwh)</b>	<b>2336</b>	<b>2336</b>
Design CV of Coal (kcal/kg)	3300	3300
Design CV of Worst Coal (kcal/kg)	2800	2800
<b>Normative Heat Rate (kcal/kwh)</b>	<b>2441</b>	<b>2363</b>

KTPS Heat Rate was kept stringent because COD of 2<sup>nd</sup> unit was on 14.06.14 (i.e. after 31.03.14), though COD of 1<sup>st</sup> unit was on 18.07.13.

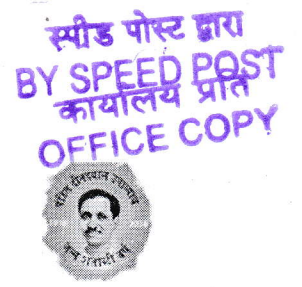
Design engineering & placement of Work Order for both DSTPS & KTPS were done at the same time. Both units are technically identical having same design heat rate and contemporary.

Normative heat rate of KTPS is very near to design value, which practically can not be possible to maintain throughout the year.

In view of above, CERC may kindly be requested to consider normative heat rate of KTPS at par with DSTPS, i.e. 4.5 % over design value.



DAMODAR VALLEY CORPORATION  
COMMERCIAL DEPARTMENT  
DVC TOWERS : V I P ROAD  
KOLKATA- 700 054



Ref.No.Coml/CERC/ 2714

Date : 31.07.2018.

To  
The Secretary,  
Central Electricity Regulatory Commission  
3rd and 4th Floor, Chanderlok Building  
36, Janpath, New Delhi – 110 001

Sub : Comments/Suggestions on Consultation Paper on Terms & Conditions of tariff regulation for tariff Period 01.04.2019 to 31.03.2024.

Ref: 1) Public Notice vide no. L-1/236/CERC dated 24.05.2018

2) The comments of DVC through letter vide no. Comml/Tariff/Comments/2547 dated 13.07.2018

Dear Sir,

In reference to the Public Notice dated 24.05.2018, DVC offered their comments through its letter dated 24.05.2018. However the revised comments of DVC in respect of Point no. 21(a) & (b), 26 & 36.7 are submitted herewith for kind inclusion replacing our previous comments.

Existing entry in Comments of DVC in Point no. 21.0 under O & M was as follows:

**“21.0 O&M**

**Comments of DVC against Point no. -21.8:**

21(a) & (b)

- Installation of pollution control system, installation of FGD system, introduction of NOx control system, up-gradation of ESP, mandatory use of treated sewage water by thermal plant, will increase the O&M cost and is to be taken care of at the time of determination of O&M.
- With the integration of renewable energy, the Generating station will undergo flexible operation (frequent ramping up & down) resulting in higher wear and tear – needs to be addressed with higher O&M cost.
- As per MOEF guideline, power stations are mandated to transport pond Ash at their own cost up to 100 KM and share half of the cost up to 300 KM. This cost needs to be reimbursed to the power station over and above O&M cost.
- Water charges needs to be allowed separately.



- The hike in employee's salary due to pay revision (approx. 14.5%) as per 7<sup>th</sup> CPC and hike in contracted labour wages (approx. 40%) as per directives of central government needs to be taken care in O&M cost.
- For standalone unit, higher O&M expenditure needs to be considered.”

The revised entry in the comments of DVC is as follows:

## **21.0 O&M**

### **Comments of DVC against Point no. -21.8:**

21(a) & (b)

- Installation of pollution control system, installation of FGD system, introduction of NOx control system, up-gradation of ESP, mandatory use of treated sewage water by thermal plant, will increase the O&M cost and is to be taken care of at the time of determination of O&M.
- *With the integration of renewable energy, the thermal generating station will undergo flexible operation (frequent ramping up & down) resulting in more failure of parts / equipment & reduction in life of the unit due to development of more fatigue stress – needs to be addressed with higher O&M cost and depreciation. DVC proposes 10 % additional O&M cost per MW of renewable power integration in DVC periphery. After observing the actual scenario the quantum of additional O&M cost may be reviewed.*
- As per MOEF guideline, power stations are mandated to transport pond Ash at their own cost up to 100 KM and share half of the cost up to 300 KM. This cost needs to be reimbursed to the power station over and above O&M cost.
- Water charges needs to be allowed separately.
- The hike in employee's salary due to pay revision (approx. 14.5%) as per 7<sup>th</sup> CPC and hike in contracted labour wages (approx. 40%) as per directives of central government needs to be taken care in O&M cost.
- For standalone unit, higher O&M expenditure needs to be considered.”

The existing entry against Point no. 26.3.19 in Operational Norms was as follows:

## **26. Operational Norms**

### **Comments of DVC against Point no. -26.3.19:**

#### **Specific Secondary Fuel Oil Consumption**

Due to integration of renewable energy and low PLF due to surrender of power by beneficiaries and shortage of coal, the Generating station has to run at the Technical minimum level or sometimes lower than that with the help of oil support. Therefore, normative value as specified below may please be considered:

For 600 MW/500 MW/ 250 MW: 1.0 ml/KWH

For 210 MW: 1.5 ml/KWH

The revised entry will be as follows:

**26. Operational Norms**

**Comments of DVC against Point no. -26.3.19:**

**Specific Secondary Fuel Oil Consumption**

Due to integration of renewable energy and low PLF due to surrender of power by beneficiaries and shortage of coal, the Generating station has to run at the Technical minimum level or sometimes lower than that with the help of oil support. Therefore, normative value as specified below may please be considered:

For 600 MW/500 MW/ 250 MW: 1.0 ml/KWH

For 210 MW: 1.5 ml/KWH

*As per Notification of CERC dated- 05.04.2016 regarding Technical Minimum Schedule for Generating Stations under Sl. No. 6.3B-3(iii):*

<i>Regulation No.</i>	<i>CERC Amendment</i>	<i>DVC Comments</i>
<i>6.3B-3 (iii)</i>	<i>Where the scheduled generation falls below the technical minimum schedule, the concerned CGS or ISGS shall have the option to go for reserve shut down and in such cases, start-up fuel cost over and above seven (7) start / stop in a year shall be considered as additional compensation based on following norms or actual, whichever is lower.</i>	<i>DVC appeals to allow compensation for start-up fuel cost from 1<sup>st</sup> start / stop.</i>

*Oil consumption (KL) per start-up allowed by CERC as follows:*

<i>Unit size (MW)</i>	<i>Hot start-up</i>	<i>Warm start-up</i>	<i>Cold start-up</i>
<i>200/210/250 MW</i>	<i>20</i>	<i>30</i>	<i>50</i>
<i>500 MW</i>	<i>30</i>	<i>50</i>	<i>90</i>
<i>660 MW</i>	<i>40</i>	<i>60</i>	<i>110</i>

*DVC proposes oil consumption (KL) per start-up as follows:*

<i>Unit size (MW)</i>	<i>Hot start-up</i>	<i>Warm start-up</i>	<i>Cold start-up</i>
<i>200/210/250 MW</i>	<i>20</i>	<i>30</i>	<i>50</i>
<i>500/600/660 MW</i>	<i>40</i>	<i>60</i>	<i>110</i>

The existing entry against Point no. 36.7 in Energy Storage system was as follows:

**“36. Energy Storage System**

**Comments of DVC against Point no. -36.7:**

Deployment of Energy Storage System connected with Grid is required with the integration of variable renewable energy sources. Deployment of grid storage is at a nascent stage and there is no policy or regulatory framework as regards to storage.



As such Commercial mechanism in tandem with operational mechanism of Energy Storage System is not clear from the consultation paper.”

The revised entry in the comments of DVC will be as follows:

**“36. Energy Storage System**

**Comments of DVC against Point no. -36.7:**

*“In order to redress the issue of variability of renewable generation (VRE) the focused approach could be - Better RE forecasting, Better load forecasting, Load shifting from peak to off peak of the load curve, and Energy Storage Systems (ESS) that could store the surplus generation and utilize it during times of low or no generation.*

*Pump Hydro Storage Plant(PHSP) is considered as Grid element and a good option and proven technology for large scale storage and grid stability and helps in mitigating the intermittency of renewable energy in view of the increasing penetration of power from Renewable Sources of Generation (RES), having variability of generation, there is a requirement of balancing power*

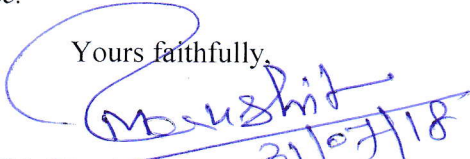
*The funding required for operationalization future development of PSPs may be supported from Power System Development Fund (PSDF) or National Clean Energy and Environment Fund (NCEEF).*

*The following methodology may be adopted while determining the tariff of Pumped storage Plant:*

- 1) Separate energy account for pumping energy & power generation from pumped water*
- 2) Sharing of operation and maintenance (O&M) expanses, to be agreed a priori among beneficiaries.*
- 3) Separate water account to be maintained for pumped water and inflow water.*
- 4) Peak hours may be different for consumers/ beneficiary States. Generation from pumped water to be scheduled keeping in view the grid requirement.*

*It was suggested that in order to compensate for the losses due to cycle efficiency, there should be incentives in tariff of Pumped Storage Generating units. Mere increase of ROE will not help to attract the Project developer to install PSP. The tariff of pump storage plant may be composed of two parts 1) fixed component and 2) one variable component considering the loss due to cycle efficiency so that the cost of generation and tariff of the project may become reasonable.”*

Yours faithfully,

  
Chief Engineer-I (Commercial)  
DVC, Kolkata

Copy to:

1. The Director (OM), MOP, GOI, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001
2. The member (PS), CEA, Sewa Bhawan, RK Puram, New Delhi-100066
3. The Member (GO & D), Sewa Bhawan, RK Puram, New Delhi-100066
4. The Member Secretary, ERPC, 14, Golf Club Road, Kolkata-700033



DAMODAR VALLEY CORPORATION  
COMMERCIAL DEPARTMENT  
DVC TOWERS : V I P ROAD  
KOLKATA- 700 054

स्पीड पोस्ट द्वारा  
BY SPEED POST



Ref.No. Coml/CERC/ 2715

Date : 31.07.2018.

To  
The Secretary,  
Central Electricity Regulatory Commission  
3rd and 4th Floor, Chanderlok Building  
36, Janpath, New Delhi – 110 001

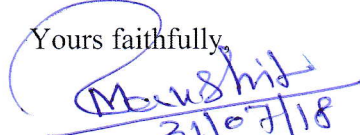
Sub : Comments/Suggestions on Draft CERC (Deviation Settlement Mechanism and related matters)  
(Fourth Amendment) Regulations,2018.

Ref: Public Notice vide no. L-1/132/2013-CERC dated 29.06.2018

Dear Sir,

In reference to the Public Notice dated 29.06.2018 on the subject matter, the comments of DVC regarding the proposed draft Fourth amendment of CERC (Deviation settlement mechanism and related matters) Regulation 2018 is prepared and enclosed herewith as Annexure A.

Yours faithfully,

  
31/07/18  
Chief Engineer-I (Commercial)  
DVC, Kolkata

Encl: As stated above

Copy to:

1. The Director (OM), MOP, GOI, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001
2. The member (PS), CEA, Sewa Bhawan, RK Puram, New Delhi-100066
3. The Member (GO & D), Sewa Bhawan, RK Puram, New Delhi-100066
4. The Member Secretary, ERPC, 14, Golf Club Road, Kolkata-700033



**1. Amendment to Regulation 2 of the Principal Regulations:**

**Proposed by CERC:**

2.1 The following sub-clause shall be added after sub-clause (c) of clause (1) of Regulation 2 of the Principal Regulations:

*“(ca) “Area Clearing Price (ACP)” means the price of 15-minute time block electricity contract established on the Exchange arrived at after considering all valid purchase and sale bids in particular area(s) determined after market splitting, i.e. dividing the market across constrained transmission corridor(s).”*

2.2 The following sub-clause shall be added after sub-clause (g) of clause (1) of Regulation 2 of the Principal Regulations:

*“(ga) “Day Ahead Market (DAM)” means a market where physical delivery of electricity occurs on the next day (T+1) of the date of transaction (T) and is governed by the Central Electricity Regulatory Commission (Power Market) Regulations, 2010 (as amended from time to time), Rules, Bye-Laws as approved by the Commission.”*

**Comment by DVC:**

No Comments.

**2. Amendment of Regulation 5 (Charges for Deviations) of the Principal Regulations:**

**Proposed by CERC:**

3.1 The table along with the note in parenthesis below the table in clause (1) of Regulation 5 of the Principal Regulations shall be substituted by the following;

Average Frequency of the time block (Hz)		Charges for Deviation (Paise/kWh)
Below	Not Below	
	50.05	0.0
50.05	50.04	Slope determined by joining the price at Not Below 50.05 Hz and identified price at 50.00 Hz, and as detailed in the note below this Regulation
50.04	50.03	
50.03	50.02	
50.02	50.01	
50.01	50.00	Daily average Area Clearing Price discovered in the Day Ahead Market segment of power exchange
50.00	49.99	Slope determined by joining the price identified at 50.00 Hz and price at below 49.85 Hz, and as detailed in the note below this Regulation
49.99	49.98	
49.98	49.97	
49.97	49.96	
49.96	49.95	
49.95	49.94	
49.94	49.93	
49.93	49.92	
49.92	49.91	
49.91	49.90	
49.90	49.89	
49.89	49.88	
49.88	49.87	
49.87	49.86	
49.86	49.85	800.00



**Comment by DVC:**

**Proposal 1:** The lower limit of frequency should be 49.7 and corresponding rate at below 49.7 Hz will be 824.00 Paisa/KWH. The dynamic slope will be as proposed based on area clearing price and proposed changes.

**Proposal 2:** If the lower limit of frequency will be 49.85, then make the rate 511.44 Paisa/KWH at below 49.85 Hz. The dynamic slope will be as proposed based on area clearing price and proposed changes.

**3. Amendment of Regulation 7 (Limits on Deviation volume and consequences of crossing limits) of the Principal Regulation:**

**Proposed by CERC:**

As per clause no 4.1 to 4.3 & 4.5 to 4.18 of Draft Amendment, the upper limit of frequency will be 50.05 instead of 50.1 and lower limit of frequency will be 49.85 instead of 49.7. The frequency dependent rate between 49.7 Hz. to 50.05 Hz. will be calculated based on frequency band 49.85 Hz to 50.05 Hz.

**Comment by DVC:**

The lower limit may not be changed to 49.85 Hz.

**Proposed:**

4.4 After the existing proviso to clause (1) of Regulation 7 of the Principal Regulations, a new proviso shall be added as under:

*Provided also that the total deviation from schedule in energy terms during a day shall not be in excess of 3% of the total schedule for the drawee entities and 1% for the generators and additional charge of 20% of the daily base DSM payable / receivable shall be applicable in case of said violation."*

**Comment by DVC:**

It is proposed to make the total deviation from schedule in a day shall not exceed the **3% instead of 1%** for the generators and the additional Deviation charges based on daily DSM payable/receivable shall be graded instead of 20% or it should be done on actual volume deviation over and above 3% deviation.

The method proposed by CERC, where everyone will be penalised in a same manner by imposing 20% of Based DSM Charge for drawing over

and above 1% for generators and 3% for drawee entity. The DVC Proposal in given below.

**Proposal 1:**

<b>Total Deviation in Daily Basis (For Generators and Drawee Entity)</b>	<b>Additional Deviation Charge in Percentage on daily base DSM Payable/Receivable</b>
0 to 3%	0%
Above 3% and up to 5%	5%
Above 5% and up to 10%	15%
Above 10% up to 15%	25%
Above 15%	30%

**Proposal 2:**

Additional Deviation Charge for daily deviation will be applicable on actual daily deviation over and above 3% for both drawee entity and generator.

Additional Deviation charge for daily deviation:

$(\text{Actual Daily Deviation} - \text{Allowable } 3\% \text{ deviation})\% \times \text{Daily base deviation charge}$

**Proposed by CERC:**

4.19 Clause (10) of Regulation 7 of the Principal Regulations shall be substituted as under:

*"In the event of sustained deviation from schedule in one direction (positive or negative) by any regional entity, such regional entity (buyer or seller) shall have to make sign of their deviation from schedule changed, at least once, after every 6 time blocks. To illustrate, if a regional entity has positive deviation from schedule from 07.30 hrs to 09.00 hrs, sign of its deviation from schedule shall be changed in the 7th time block i.e. 09.00 hrs to 09.15 hrs from positive to negative or negative to positive as the case may be.*

*Provided that violation of the requirement under this clause shall attract an additional surcharge of 20% on the daily base DSM payable / receivable as the case may be."*

**Comment by DVC:**

The penal charges of 20% on daily base DSM charges will be same for both the entities who have violated the sign change one time or more than one time or varies with number of violation regarding sign change.



If the penal charges varies with number of violation, the counting procedure for violation of sign change should be mentioned.

If not, the penalty will not be proper, because for violation of sign change in one time, any entity have to pay additional 20% of its Daily base deviation charges. After that any entity will not change the direction of drawal or injection.

**Proposal 1:**

CERC may fix the number of change of sign in a day and violation of that will attract additional deviation charge in following manner.

<b>No of violation of sign change</b>	<b>Additional Deviation Charge (%)</b>
1	2%
2-5	10%
6-10	20%
10-16	30%

**Proposal 2:**

Additional Deviation Charge will be charged on the basis of number of violation of sign charge multiplied with 5% of daily based deviation charge.

**Proposal for Amendment of Regulation in respect of 3<sup>rd</sup> Amendment w.e.f. dated 30.05.2018 for those beneficiaries where schedule is less than or equal to 400MW.**

**Proposal:**

<b>Schedule Description</b>	<b>For Under Drawal/Over Injection</b>	<b>For Over Drawal/Under Injection</b>
Schedule less than or equal to 100MW	The charges for the deviation for the under-drawal / over injection in excess of 12 MW shall be zero.	When the schedule is less than or equal to 100 MW, the additional charges for deviation shall be based on percentage of deviation worked out with reference to schedule of 100 MW as per Table-I and Table-II of Principle Regulation
Schedule greater than 100 and less than or equal to 200MW	The charges for the deviation for the under-drawal / over injection	When the schedule is greater than 100MW and less than or equal to 200 MW, the additional charges for deviation shall be

	in excess of 24 MW shall be zero.	based on percentage of deviation worked out with reference to schedule of 200 MW as per Table-I and Table-II of Principle Regulation
Schedule greater than 200 and less than or equal to 300MW	The charges for the deviation for the under-drawal / over injection in excess of 36 MW shall be zero.	When the schedule is greater than 200MW and less than or equal to 300 MW, the additional charges for deviation shall be based on percentage of deviation worked out with reference to schedule of 300 MW as per Table-I and Table-II of Principle Regulation
Schedule greater than 300 and less than or equal to 400MW	The charges for the deviation for the under-drawal / over injection in excess of 48 MW shall be zero.	When the schedule is greater than 300MW and less than or equal to 400 MW, the additional charges for deviation shall be based on percentage of deviation worked out with reference to schedule of 400 MW as per Table-I and Table-II of Principle Regulation