

|   | 2014-15          | 2015-16          | 2016-17          | 2017-18          | 2018-19          |
|---|------------------|------------------|------------------|------------------|------------------|
| Balance useful life at the beginning of the year (E)  | 2.25             | 1.25             | 0.25             | 0.00             | 0.00             |
| Weighted average rate of depreciation (F)   | 2.2156%          | 2.2225%          | 0.5136%          | 0.0204%          | 0.0000%          |
| <b>Depreciation during the year (G = D/E)</b>   | <b>5369.26</b>   | <b>5385.52</b>   | <b>1243.92</b>   | <b>49.26</b>     | <b>0.00</b>      |
| Cumulative depreciation at the end of the year, before adjustment of de-capitalisation adjustment (H = G + 'J' of previous year)    | 208590.29        | 213941.63        | 215181.38        | 215021.55        | 214891.19        |
| Cumulative depreciation adjustment on account of de-capitalisation (I)  | 34.18            | 4.17             | 209.09           | 130.35           | 186.46           |
| <b>Cumulative depreciation, at the end of the year (J = H - I)</b>  | <b>208556.11</b> | <b>213937.45</b> | <b>214972.29</b> | <b>214891.19</b> | <b>214704.73</b> |
| <b>Assets Admitted During the period 2014-19</b>  |                  |                  |                  |                  |                  |
| Average capital cost (A1)   | 0.00             | 17.31            | 34.61            | 34.61            | 849.27           |
| Value of freehold land included above (B1)  | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             |
| Aggregated depreciable value [C1 = (A1-B1) x 90%]   | 0.00             | 15.58            | 31.15            | 31.15            | 764.34           |
| Remaining aggregate depreciable value at the beginning of the year (D1 = C1 - 'J1' of previous year)                                | 0.00             | 15.58            | 30.24            | 28.41            | 759.77           |
| Balance useful life at the beginning of the year (E1)   | 2.25             | 1.25             | 0.25             | 0.00             | 0.00             |
| Weighted average rate of depreciation (F1)  | 5.2800%          | 5.2800%          | 5.2800%          | 5.2800%          | 5.2800%          |
| <b>Depreciation during the year (G1 = D1/E1)</b>  | <b>0.00</b>      | <b>0.91</b>      | <b>1.83</b>      | <b>1.83</b>      | <b>44.84</b>     |
| Cumulative depreciation at the end of the year, before adjustment of de-capitalisation adjustment (H1 = G1 + 'J1' of previous year) | 0.00             | 0.91             | 2.74             | 4.57             | 49.41            |
| Cumulative depreciation adjustment on account of de-capitalisation (I1)   | 0.00             | 0.00             | 0.00             | 0.00             | 0.00             |
| <b>Cumulative depreciation, at the end of the year (J1 = H1 - I1)</b>   | <b>0.00</b>      | <b>0.91</b>      | <b>2.74</b>      | <b>4.57</b>      | <b>49.41</b>     |
| <b>Total Depreciation during the Year (G+G1)</b>  | <b>5369.26</b>   | <b>5386.43</b>   | <b>1245.75</b>   | <b>51.08</b>     | <b>44.84</b>     |

**Unrecovered Depreciation up to 31.3.2014 on account of lower availability of the generating station**

64. The Petitioner has claimed Rs.179.12 lakh towards unrecovered depreciation in 2012-13 on account of lower availability of the generating station based on APTEL judgment dated 13.6.2017 in Appeal No. 139 of 2006, on the issue of "admissibility of



depreciation up to 90% of the value of assets”. APTEL in its judgment dated 13.6.2007 in Appeal Nos. 139 of 2006 and batch (NTPC Ltd. Vs CERC and ors) has held as follows:

*“In a regulatory cost-plus regime all costs have to be reimbursed. Depreciation amount up to 90% being a cost has to be allowed over the life of the plant. If due to underperformance in a particular year the appellant is not able to recover full depreciation allowed in that year and if this denial is forever, it will tantamount to a penalty. In a contract between the appellant and the beneficiaries, only levy of liquidated damages can be permitted. It will, therefore, be enough deterrent for the appellant if the depreciation is not allowed during the year of underperformance. However, the same cannot be denied forever and, therefore, it will be only fair to allow the unpaid portion of the depreciation after the plant has lived its designated useful life. In this view of the matter the CERC needs to examine this aspect as per the aforesaid observations.”*

159. The APTEL judgment refers to consider allowing the recovery of unrecovered depreciation over the life of the plant, after the plant has lived its designated useful life. The matter has been examined. It is observed that the 2004 Tariff Regulations and the 2009 Tariff Regulations were silent about the recovery of unrecovered depreciation due to underperformance of the generating station in terms of plant availability factor (PAF) in comparison to NAPAF. As such, in absence of such explicit provision in the 2004 Tariff Regulations and the 2009 Tariff Regulations, APTEL in its above judgment observed that –

*“It will, therefore, be enough deterrent for the appellant if the depreciation is not allowed during the year of underperformance. However, the same cannot be denied forever and, therefore, it will be only fair to allow the unpaid portion of the depreciation after the plant has lived its designated useful life”*

65. The Commission vide order dated 23.8.2016 in Petition No. 291/GT/2014 had already allowed this unrecovered depreciation claim of the Petitioner as part of fixed cost in 2016-17 after the completion of useful life of the generating station. Also, consequent to the decision of the Appellate Tribunal for Electricity in order dated 13.6.2007 in Appeal No. 207 of 2006, the unrecovered depreciation of Rs.179.12 lakh in 2012-13 is allowed and is considered as part of the fixed cost in 2016-17, after the completion of the useful life of the generating station. The Petitioner may recover the



same from beneficiaries after reconciliation of the PAF, billed amount and unrecovered depreciation during the period of claim as indicated by the Petitioner.

### **O&M Expenses**

66. The Commission in its order dated 23.8.2016 in Petitioner No. 291/GT/2014 and read with order dated 6.4.2017 in Petition No. 58/RP/2016 had allowed O & M expenses as under:

|  | <i>(Rs. in lakh)</i> |                 |                 |                 |                 |
|--|----------------------|-----------------|-----------------|-----------------|-----------------|
|  | 2014-15              | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
| O&M expenses allowed under Regulation 29(1)(a) | 16000.00             | 17010.00        | 18080.00        | 19220.00        | 20430.00        |
| Water Charges allowed under Regulation 29(2)   | 394.82               | 394.82          | 394.82          | 394.82          | 394.82          |
| Capital spares                                 | 0.00                 | 0.00            | 0.00            | 0.00            | 0.00            |
| <b>Total O&amp;M Expenses</b>                  | <b>16394.82</b>      | <b>17404.82</b> | <b>18474.82</b> | <b>19614.82</b> | <b>20824.82</b> |

67. The O&M expenses claimed by the Petitioner are as under:

|   | <i>(Rs. in lakh)</i> |                 |                 |                 |                 |
|---|----------------------|-----------------|-----------------|-----------------|-----------------|
|   | 2014-15              | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
| O&M expenses under Regulation 29(1)(a) of the 2014 Tariff Regulations | 16000.00             | 17010.00        | 18080.00        | 19220.00        | 20430.00        |
| O&M expenses under Regulation 29(2) of the 2014 Tariff Regulations:   |                      |                 |                 |                 |                 |
| - Water Charges   | 423.85               | 420.80          | 420.70          | 423.85          | 434.30          |
| - Capital Spares consumed   | 205.57               | 174.96          | 326.64          | 118.65          | 219.18          |
| <b>Sub-total O&amp;M Expenses</b>                                     | <b>16629.42</b>      | <b>17605.76</b> | <b>18827.34</b> | <b>19762.50</b> | <b>21083.48</b> |
| Impact of Wage revision   | 0.00                 | 29.80           | 2377.91         | 2584.31         | 3100.97         |
| Impact of GST   | 0.00                 |                 |                 | 148.60          | 206.47          |
| <b>Total O&amp;M Expenses</b>   | <b>16629.42</b>      | <b>17635.56</b> | <b>21205.25</b> | <b>22495.41</b> | <b>24390.92</b> |

68. As the normative O&M expenses claimed by the Petitioner is in terms of Regulation 29(1)(a) of the 2014 Tariff Regulations, and is the same as allowed by order dated 23.8.2016 in Petitioner No. 291/GT/2014, the claim of the Petitioner is allowed.

### **Water Charges**

69. Regulation 29(2) of the 2014 Tariff Regulations provide as under:



“29.(2) The Water Charges and capital spares for thermal generating stations shall be allowed separately:

Provided that water charges shall be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The details regarding the same shall be furnished along with the petition: “

70. In terms of the above regulation, water charges are to be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The Petitioner has claimed water charges based on actual water consumption of the generating station (Satge-I). The water charges claimed by the Petitioner is as under:

| <i>(Rs. in lakh)</i>  |                    |                |                |                |                |                |
|---|--------------------|----------------|----------------|----------------|----------------|----------------|
|   | <b>Units</b>       | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| Type of cooling tower   | -                  |                |                |                |                |                |
| Type of cooling water system                                  | -                  | Open Cycle     |                |                |                |                |
| Water allocation/contracted                                   | CUSEC              | 37.19          | 37.19          | 37.19          | 37.19          | 37.19          |
| Actual water consumption for Stage-I                          | CUSEC              | 37.19          | 37.19          | 37.19          | 37.19          | 37.19          |
| Rate of water charges   | Paisa.<br>/kWh     | 268.68         |                |                |                |                |
| <b>Water charges paid for Stage I and claimed in Petition</b> | <b>Rs. in lakh</b> | <b>423.85</b>  | <b>420.80</b>  | <b>420.70</b>  | <b>423.85</b>  | <b>434.30</b>  |

71. The water charges allowed, on projected basis, by the Commission in order dated 6.4.2017 in Petition No. 58/RP/2016 is as under:

| <i>(Rs. in lakh)</i> |                |                |                |                |
|----------------------|----------------|----------------|----------------|----------------|
| <b>2014-15</b>       | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| 394.82               | 394.82         | 394.82         | 394.82         | 394.82         |

72. It is observed that the instant generating station and Singrauli STPS (another power station of the Petitioner) draw their consumptive water from Rihand water reservoir. On the same reservoir two hydel power stations of UP (Rihand 6 x 50 MW) and Obra (3x30 MW) are also located, which meet the peaking/ emergency power requirement of Uttar Pradesh. There was a dispute between UP and the Petitioner over the consumptive water drawl by the Petitioner for the two thermal power stations viz Singrauli STPS and Rihand STPS and the same was referred to ‘Umpire’, wherein,



it was decided that the Petitioner should pay compensation towards generation loss of hydro power plants of UP viz Rihand and Obra. The cost of this energy would be double the rate of maximum energy charge rate charged by the Petitioner in any concerned year.

73. Further, there was an agreement between the Petitioner, Government of UP and erstwhile UPSEB, wherein the principles of consumptive water charges were decided. The Petitioner has submitted the copy of the agreement dated 3.4.1999. The principles decided in the agreement are as follows:

- i. Water level may be taken on theoretical basis i.e., minimum 830 feet and maximum 880 feet of Rihand reservoir.
- ii. T&D losses would be considered as 12%.
- iii. Auxiliary consumption of UP Hydro stations viz Rihand and Obra would be 0.5%.
- iv. The energy loss will be calculated taking into consideration the actual availability of Rihand hydro station of UP for the year 1998.
- v. Water charges shall be payable from the date of synchronisation of the units.
- vi. The per kilowatt hour charges to be applied will be the highest average annual rate during 1998 amongst Northern Region coal-based stations of the Petitioner and will be applicable w.e.f. 1.1.199 for next five years and there would be upward revision of 10% every 5 years.

74. Accordingly, in terms of the above agreement, the actual water charges incurred during the year 2013-14 was considered as projected water charges for the period 2014-19 in the Commission's order dated 6.4.2017 in Petition 58/RP/2016. The Petitioner vide its affidavit dated 4.6.2021 has furnished the Auditor certificate, in respect of the actual water charges incurred for the period 2014-19, along with the computation of the year-wise claim. After scrutiny of the said information, the audited actual water charges claimed by the Petitioner, as above, is allowed, on prudence check



## **Capital Spares**

75. The last proviso to Regulation 29(2) of the 2014 Tariff Regulations provides as under:

*“29(2) The Water Charges and capital spares for thermal generating stations shall be allowed separately:*

*xxxxx*

*Provided that the generating station shall submit the details of year wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance or special allowance or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernisation”.*

76. In terms of the above proviso, capital spares consumed are admissible separately, at the time of truing up of tariff, based on the details furnished by the Petitioner. The capital spares claimed by the Petitioner for the period 2014-19 in terms of last proviso to Regulation 29(2) of 2014 Tariff Regulations, is as under:

| <i>(Rs. in lakh)</i> |                |                |                |                |
|----------------------|----------------|----------------|----------------|----------------|
| <b>2014-15</b>       | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| 205.57               | 174.96         | 326.64         | 118.65         | 219.18         |

77. We have examined the list of spares furnished by the Petitioner along with the de-capitalisation details as submitted in Form-9Bi. The capital spares consumption claimed by the Petitioner comprise of two categories as under:

|   | <i>(Rs. in lakh)</i> |                |                |                |                |
|---|----------------------|----------------|----------------|----------------|----------------|
|   | <b>2014-15</b>       | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| Capital spares (forming part of allowed capital cost)     | 0.00                 | 0.00           | 172.30         | 87.92          | 205.82         |
| Capital spares (not forming part of allowed capital cost) | 205.57               | 174.96         | 154.33         | 30.73          | 13.36          |
| Total capital spares consumed claimed                     | 205.57               | 174.96         | 326.64         | 118.65         | 219.18         |

78. It is pertinent to mention that the term ‘capital spares’ has not been defined in the 2014 Tariff Regulations. The term capital spares, in our view, is a piece of equipment, or a spare part, of significant cost that is maintained in inventory for use in the event that a similar piece of critical equipment fails or must be rebuilt. Keeping in view the principle of materiality and to ensure standardised practices in respect of



earmarking and treatment of capital spares, the value of capital spares exceeding Rs.1.00 lakh, on prudence check of the details furnished by the Petitioner in Form-17 of the Petition, has been considered for the purpose of tariff. Based on this, the details of capital spares consumption allowed for the period 2014-19, is summarised as under:

|   | <i>(Rs. in lakh)</i> |                |                |                |                |
|---|----------------------|----------------|----------------|----------------|----------------|
|   | <b>2014-15</b>       | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| Total capital spares consumed claimed   | 205.57               | 174.96         | 326.64         | 118.65         | 219.18         |
| Total capital spares consumed (not part of capital cost)                        | 205.57               | 174.96         | 154.33         | 30.73          | 13.36          |
| Less: Value of capital spares below Rs.1.00 lakh disallowed on individual basis | 0.42                 | 0.83           | 0.26           | 0.84           | 0.40           |
| <b>Net total value of capital spares considered</b>                             | <b>205.15</b>        | <b>174.13</b>  | <b>154.07</b>  | <b>29.89</b>   | <b>12.96</b>   |

79. Also, considering the fact that the original value of capital spares taken out of service is neither available nor has been furnished by the Petitioner for the period 2014-19, we are of the view that the salvage value of the capital spares being replaced is required to be deducted from the net total value of capital spares considered during the period 2014-19. In view of the above, the salvage value of 10% has been deducted from the net total value of capital spares considered during the period 2014-19. Accordingly, net capital spares allowed is summarised as under:

|  | <i>(Rs. in lakh)</i> |                |                |                |                |
|--|----------------------|----------------|----------------|----------------|----------------|
|  | <b>2014-15</b>       | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| Net total value of capital spares considered | 205.15               | 174.13         | 154.07         | 29.89          | 12.96          |
| Less: Salvage value @ 10%                    | 20.52                | 17.41          | 15.41          | 2.99           | 1.30           |
| <b>Net capital spares allowed</b>            | <b>184.64</b>        | <b>156.71</b>  | <b>138.67</b>  | <b>26.90</b>   | <b>11.66</b>   |

### **Additional O&M Expenses on account of Goods and Service Tax**

80. The Petitioner has claimed additional O&M expenses of Rs.148.60 lakh in 2017-18 and Rs.206.47 lakh in 2018-19, on account of payment of Goods and Service Tax (GST). The Respondent UPPCL and TPDDL have submitted that the Petitioner



has not submitted the details of the calculation of the amount claimed towards the impact of GST. In reply to the same, the Petitioner has submitted that the details of the calculation towards impact of GST, duly certified by the auditor, has been submitted vide additional submission dated 30.8.2021.

81. The submissions of the parties have been considered. It is observed that the Commission while specifying the O&M expense norms for the period 2014-19, had considered taxes to form part of the O&M expense calculations and accordingly, had factored the same in the said norms. This is evident from paragraph 49.6 of the SOR (Statement of Objects and Reasons) issued with the 2014 Tariff Regulations, which is extracted hereunder:

*“49.6 With regards to suggestion received on other taxes to be allowed, the Commission while approving the norms of O&M expenses has considered the taxes as part of O&M expenses while working out the norms and therefore the same has already been factored in...”*

82. Further, the escalation rates considered in the normative O&M expenses were finalized only after the consideration of the variations during the last five years, which also, takes care of any variation in taxes also. It may be noted that in case of reduction of taxes or duties, the Petitioner is not required to reimburse any taxes in tariff. As such, additional O&M expenses on account of GST are not admissible separately.

### **Additional O&M Expenses on account of impact of Wage Revision**

83. The Petitioner has submitted that the Commission, while specifying the 2014 Tariff Regulations applicable for the period 2014-19, had taken note in SOR to the said regulations that any increase in the employee expenses, on account of pay revision shall be considered appropriately, on case-to-case basis, balancing the interest of generating stations and consumers. The Petitioner has, therefore, claimed additional O&M expenses of Rs.29.80 lakh in 2015-16, Rs.2377.94 lakh in 2016-17, Rs.2584.32



lakh in 2017-18 and Rs.3100.96 lakh in 2018-19, towards impact of wage revision of employees of CISF and Kendriya Vidyalaya (KV) from 1.1.2016 and the employees of the Petitioner posted in the generating station with effect from 1.1.2017. In this regard the Petitioner vide affidavit dated 30.6.2021 has submitted the following:

- (a) Detailed break-up of the actual O&M expenses booked by the Petitioner for the period 2014-19, for the whole generating station
- (b) Detailed break-up of actual O&M expense of the Corporate Centre and its allocation to various generating stations, for the period 2014-19.
- (c) Break-up of claimed wage revision impact on employee cost, expenses on corporate centre and on salaries of CISF & Kendriya Vidyalaya employee of the generating station for the period 2014-19.

84. We have examined the submissions and the documents available on record. As stated, the Petitioner has claimed total amount of Rs.8092.99 lakh (Rs.29.80 lakh in 2015-16, Rs.2377.94 lakh of in 2016-17, Rs.2584.32 lakh in 2017-18 and Rs.3100.96 lakh in 2018-19) as impact of wage revision of employees of CISF and Kendriya Vidyalaya staff from 1.1.2016 and for employees of the Petitioner posted at the generating station with effect from 1.1.2017. However, it is noticed that the said claim of the Petitioner includes the impact on account of the payment of additional PRP/ex-gratia to its employees, consequent upon wage revision, of Rs.192.75 lakh in 2017-18 and Rs.766.02 lakh in 2018-19. As such, as per consistent methodology adopted by the Commission of excluding PRP/ex-gratia from actual O&M expenses of past data for finalisation of O&M norms for various tariff settings, the additional PRP/ex-gratia, paid as a result of wage revision impact has been excluded from the wage revision impact claimed by the Petitioner, in the present case. Accordingly, the claim of the Petitioner in respect of wage revision impact stand reduced to Rs.3262.39 lakh with the following year-wise break up.

*(Rs. in lakh)*

|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | Total   |
|--|---------|---------|---------|---------|---------|---------|
| Wage revision impact claimed (excluding PRP/ex-gratia) | 0.00    | 29.80   | 2377.94 | 2391.57 | 2334.94 | 7134.25 |



85. The Commission while specifying the O&M expense norms under the 2014 Tariff Regulations had considered the actual O&M expense data for the period from 2008-09 to 2012-13. However, considering the submissions of the stakeholders, the Commission, in the SOR to the 2014 Tariff Regulations, had observed that the increase in employees cost due to impact of pay revision impact, will be examined on a case to case basis, balancing the interest of generating stations and the consumers.

The relevant extract of the SOR is extracted under:

*“29.26. Some of the generating stations have suggested that the impact of pay revision should be allowed on the basis of actual share of pay revision instead of normative 40% and one generating company suggested that the same should be considered as 60%. In the draft Regulations, the Commission had provided for a normative percentage of employee cost to total O&M expenses for different type of generating stations with an intention to provide a ceiling limit so that it does not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission would however, like to review the same considering the macroeconomics involved as these norms are also applicable for private generating stations. In order to ensure that such increase in employee expenses on account of pay revision in case of central generating stations and private generating stations are considered appropriately, the Commission is of the view that it shall be examined on case to case basis, balancing the interest of generating stations and consumers.*

*33.2 The draft Regulations provided for a normative percentage of employee cost to total O&M expenses for generating stations and transmission system with an intention to provide a ceiling limit so that the same should not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission shall examine the increase in employee expenses on case to case basis and shall consider the same if found appropriate, to ensure that overall impact at the macro level is sustainable and thoroughly justified. Accordingly, clause 29(4) proposed in the draft Regulations has been deleted. The impact of wage revision shall only be given after seeing impact of one full year and if it is found that O&M norms provided under Regulations are inadequate/insufficient to cover all justifiable O&M expenses for the particular year including employee expenses, then balance amount may be considered for reimbursement.”*

86. The methodology indicated in SOR quoted above suggests a comparison of the normative O&M expenses with the actual O&M expenses, on year-to-year basis. However, in this respect the following facts needs consideration:

- (a) The norms are framed based on the averaging of the actual O&M expense of past five years to capture the year-on-year variations in sub-heads of O&M.



- (b) Certain cyclic expenditure may occur with a gap of one year or two years and as such adopting a longer duration i.e. five years for framing of norms also captures such expenditure which is not incurred on year to year basis;
- (c) When generating companies find that their actual expenditure has gone beyond the normative O&M expenses in a particular year put departmental restrictions and try to bring the expenditure for the next year below the norms.

87. In consideration of above facts, we find it appropriate to compare the normative O&M expenses with the actual O&M expenses for a longer duration so as to capture the variation in the sub-heads. Accordingly, it is decided that for ascertaining that the O&M expense norms provided under the 2014 Tariff Regulations are inadequate/insufficient to cover all justifiable O&M expenses, including employee expenses, the comparison of the normative O&M expenses and the actual O&M expenses incurred shall be made for four years i.e. 2015-19, on a combined basis, which is commensurate with the wage revision claim being spread over these four years.

88. The matter has been examined. The Petitioner has furnished the detailed breakup of the actual O&M expenses incurred during the period 2014-19, for combined stages i.e. Stage-I, II, III of the generating station. It is noticed that the total O&M expenses incurred for the generating station is more than the normative O&M expenses recovered during each year of the period 2014-19. The impact of wage revision/ pay revision could not be factored by the Commission while framing the O&M expense norms under the 2014-19 Tariff Regulations since the pay/ wage revision came into effect from 1.1.2016 (CISF & KV employees) and 1.1.2017 (employees of the Petitioner) respectively. As such, in terms of relevant provisions of SOR of the 2014 Tariff Regulations, the following approach as given in the subsequent paragraphs, has been adopted for arriving at the allowable impact of pay revision:

- (a) Comparison of the normative O&M expenses with the actual O&M expenses incurred for the period from 2015-16 to 2018-19, commensurate to the period for



which wage revision impact has been claimed. For like to like comparison, the components of O&M expenses like productivity linked incentive, water charges, filing fee, ex-gratia, loss of provisions, prior period expenses, community development store expenses, ash utilisation expenses, RLDC fee & charges and others (without breakup/details) which were not considered while framing the O&M expense norms for the period 2014-19, have been excluded from the yearly actual O&M expenses. Having done so, if the normative O&M expenses for the period 2015-19 are higher than the actual O&M expenses (normalised) for the said period, then the impact of wage revision (excluding PRP and ex-gratia) as claimed for the said period is not admissible/allowed as the impact of pay revision gets accommodated within the normative O&M expenses. However, if the normative O&M expenses for the period 2015-19 are lesser than the actual O&M expenses (normalised) for the same period, the wage revision impact (excluding PRP and ex-gratia) to the extent of under recovery or wage revision impact (excluding PRP and ex-gratia), whichever is lower, is required to be allowed as wage revision impact for the period 2015-19.

89. The details as furnished by the Petitioner for actual O&M expenses incurred for Rihand STPS for the period from 1.4.2014 to 31.3.2019, and the wage revision impact (excluding PRP and ex-gratia) for this generating station (Stage-I 1000 MW) are as under:

| <i>(Rs. in lakh)</i> |   |  |
|----------------------|---|--|
| Year                 | Actual O&M expenses for whole Rihand STPS, excluding water charges & capital spares | Wage revision impact claimed for the generating station i.e., Rihand Stage I (1000 MW) |
| 2014-15              | 48738.63  | 0.00   |
| 2015-16              | 55519.27  | 29.80  |
| 2016-17              | 66699.02  | 2377.94  |
| 2017-18              | 62620.94  | 2584.32  |
| 2018-19              | 62614.07  | 3100.96  |
| <b>Total</b>         |   | <b>8093.02</b>   |

90. As a first step, the expenditure against sub-heads of O&M expenses as indicated above, have been excluded from the actual O&M expenses incurred to arrive at the actual O&M expenses (normalised) for the combined stages of the generating station (Stage I to Stage III 3000 MW). Accordingly, the comparison of the normative O&M expenses versus the actual O&M expenses (normalised) along with the wage revision impact claimed by the Petitioner for the generating station i.e. Rihand STPS, Stage-I (1000 MW) for the period 2015-19 is as under:



(Rs. in lakh)

|  | 2015-16   | 2016-17  | 2017-18   | 2018-19    | Total     |
|--|-----------|----------|-----------|------------|-----------|
| Actual O&M expenses (normalised) for the combined stages of the generating station (Stage I to Stage III from 1.4.2015 to 31.3.2019 for 3000 MW) – (a) | 49331.89  | 61094.40 | 56114.37  | 55509.83   | 222050.49 |
| Actual O&M expenses (normalised) for the generating station i.e., Rihand STPS, Stage-I (1000 MW) pro-rated based on capacity – (b)                     | 16443.96  | 20364.80 | 18704.79  | 18503.28   | 57572.87  |
| Normative O&M expenses for Rihand STPS, Stage-I as per Regulation 29(1) of the 2014 Tariff Regulations – (c)   | 17010.00  | 18080.00 | 19220.00  | 20430.00   | 57730.00  |
| Under/(Excess) recovery for the generating station (d)=(b)-(c)   | (-)566.04 | 2284.80  | (-)515.21 | (-)1926.72 | (-)723.17 |
| Wage revision impact claimed (excluding PRP/ex-gratia)   | 29.80     | 2377.94  | 2391.57   | 2334.94    | 7134.25   |

91. It is observed that for the wage revision impact during the period 2015-19, the normative O&M expenses is in excess of the actual O&M expenses (normalised) and the excess recovery is to the tune of Rs.723.17 lakh. As such, in terms of methodology described above, the wage revision impact (excluding PRP/ ex-gratia) is not allowed for this generating station.

92. Accordingly, the total O&M expenses allowed to the generating station for the period 2014-19, is as under:

(Rs. in lakh)

|   | 2014-15  | 2015-16  | 2016-17  | 2017-18  | 2018-19  |
|---|----------|----------|----------|----------|----------|
| Normative O&M expenses claimed under Regulation 29(1)(a) of the 2014 Tariff Regulations (a) | 16000.00 | 17010.00 | 18080.00 | 19220.00 | 20430.00 |
| Normative O&M expenses allowed under Regulation 29(1)(a) of the 2014 Tariff Regulations (b) | 16000.00 | 17010.00 | 18080.00 | 19220.00 | 20430.00 |
| Water Charges claimed under Regulation 29(2) of the 2014 Tariff Regulations (c)             | 423.85   | 420.80   | 420.70   | 423.85   | 434.30   |
| Water Charges allowed under Regulation 29(2) of the 2014 Tariff Regulations (d)             | 423.85   | 420.80   | 420.70   | 423.85   | 434.30   |
| Capital Spares consumed claimed under Regulation  | 205.57   | 174.96   | 326.64   | 118.65   | 219.18   |



|   |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|
| 29(2) of the 2014 Tariff Regulations (e)  |             |             |             |             |             |
| Capital Spares consumed allowed under Regulation 29(2) of the 2014 Tariff Regulations (f) | 184.64      | 156.72      | 138.67      | 26.90       | 11.66       |
| Total O&M expenses claimed under Regulation 29 of the 2014 Tariff Regulations (a + c + e) | 16629.42    | 17605.76    | 18827.34    | 19762.50    | 21083.48    |
| Total O&M expenses allowed under Regulation 29 of the 2014 Tariff Regulations (b + d + f) | 16608.49    | 17587.52    | 18639.37    | 19670.75    | 20875.96    |
| Impact of Wage revision claimed   | 0.00        | 29.80       | 2377.91     | 2584.31     | 3100.97     |
| <b>Impact of Wage revision allowed</b>  | <b>0.00</b> | <b>0.00</b> | <b>0.0</b>  | <b>0.00</b> | <b>0.00</b> |
| Impact of GST claimed   | 0.00        | 0.00        | 0.00        | 148.60      | 206.47      |
| <b>Impact of GST allowed</b>  | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |

### **Compensation Allowance**

93. Regulation 17 of the 2014 Tariff Regulations provides as under:

*“17. Compensation Allowance:*

*(1) In case of coal-based or lignite-fired thermal generating station or a unit thereof a separate compensation allowance shall be admissible to meet expenses on new assets of capital nature which are not admissible under Regulation 14 of these regulations and in such an event revision of the capital cost shall not be allowed on account of compensation allowance, but the compensation allowance shall be allowed to be recovered separately.*

*(2) The Compensation Allowance shall be allowed in the following manner from the year following the year of completion of 10, 15, or 20 years of the useful life.”*

| <b>Years of operation</b> | <b>Compensation Allowance<br/>(Rs. lakh/MW/year)</b> |
|---------------------------|--|
| 0-10                      | Nil  |
| 11-15                     | 0.20   |
| 16-20                     | 0.50   |
| 21-25                     | 1.00   |

94. The Commission in its order dated 23.8.2016 in Petition No. 291/GT/2014 had allowed Compensation allowance of Rs.1000.00 lakh in 2014-15 and Rs.500.00 lakh in 2015-16, for the generating station. The same has been considered by the Petitioner and hence allowed for the period 2014-19.



## **Operational Norms**

95. The operational norms in respect of the generating station i.e. normative annual plant availability factor, gross station heat rate, specific fuel oil consumption and auxiliary power consumption are discussed as under:

### **(a) Normative Annual Plant Availability Factor (NAPAF)**

96. In terms of Regulation 36(A)(a) of the 2014 Tariff Regulations, the NAPAF of 83% for the period 2014-17 and 85% for the period 2017-19 is considered.

### **(b) Gross Station Heat Rate (kCal/ kWh)**

97. In terms of Regulation 36(C)(a) of the 2014 Tariff Regulations, the Gross Station Heat Rate (GSHR) of 2335 kCal/ kWh as allowed in order dated 23.8.2016 in Petition No. 291/GT/2014, is considered.

### **(c) Specific Oil Consumption**

98. In terms of Regulation 36(D)(a) of the 2014 Tariff Regulations, the secondary fuel oil consumption of 0.50 ml/kWh, as allowed in order dated 23.8.2016 in Petition No. 291/GT/2014, is considered.

### **(d) Auxiliary Power Consumption**

99. In terms of the Regulation 36(E)(a) of the 2014 Tariff Regulations, the auxiliary power consumption of 7.75% as allowed in order dated 23.8.2016 in Petition No. 291/GT/2014, is considered.

## **Interest on Working Capital**

100. Regulation 28 of the 2014 Tariff Regulations provides as under:

*“28. Interest on Working Capital:*

*(1) The working capital shall cover:*

*(a) Coal-based/lignite-fired thermal generating stations:*

*(i) Cost of coal or lignite and limestone towards stock if applicable for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;*

*(ii) Cost of coal or lignite and limestone for 30 days for generation corresponding to the normative annual plant availability factor;*



- (iii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor and in case of use of more than one secondary fuel oil cost of fuel oil stock for the main secondary fuel oil;
- (iv) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 29;
- (v) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor; and
- (vi) Operation and maintenance expenses for one month.
- (2) The cost of fuel in cases covered under sub-clauses (a) and (b) of clause (1) of this regulation shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the generating company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period.
- (3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof as the case may be is declared under commercial operation whichever is later.
- (4) Interest on working capital shall be payable on normative basis notwithstanding that the generating company or the transmission licensee has not taken loan for working capital from any outside agency.”

### **Fuel Cost and Energy Charges in Working Capital**

101. Regulation 28(2) of the 2014 Tariff Regulations provides that the computation of cost of fuel, as part of Interest on Working Capital (IWC) is to be based on the landed price and GCV of fuel as per actuals, for the three months preceding the first month for which the tariff is to be determined. Regulation 30(6)(a) of the 2014 Tariff Regulations provides as under:

“30. Computation and Payment of Capacity Charge and Energy Charge for Thermal Generating Stations:

(6) Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal place in accordance with the following formula:

(a) For coal based and lignite fired stations

$$ECR = \{(GHR - SFC \times CVSF) \times LPPF / CVPF + SFC \times LPSFi + LC \times LPL\} \times 100 / (100 - AUX)$$

Where,

AUX = Normative auxiliary energy consumption in percentage.

CVPF = Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic metre, as applicable.

CVSF = Calorific value of secondary fuel, in kCal per ml.

ECR = Energy charge rate, in Rupees per kWh sent out.

GHR = Gross station heat rate, in kCal per kWh.

LC = Normative limestone consumption in kg per kWh.



*LPL = Weighted average landed price of limestone in Rupees per kg.*

*LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable during the month.*

*SFC= Normative specific fuel oil consumption, in ml/ kWh*

*LPSFi= Weighted average landed price of secondary fuel in Rs/ ml during the month”.*

102. Therefore, in terms of the above regulation, the GCV of coal on ‘as received’ basis is to be considered for determination of the Energy Charges in working capital.

103. Regulation 30(7) of the 2014 Tariff Regulations provides as under:

*“(7) The generating company shall provide to the beneficiaries of the generating station the details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, e-auction coal, lignite, natural gas, RLNG, liquid fuel etc., as per the forms prescribed at Annexure-I to these regulations:*

*Provided that the details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal and the weighted average GCV of the fuels as received shall also be provided separately, along with the bills of the respective month:*

*Provided further that copies of the bills and details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, e-auction coal, lignite, natural gas, RLNG, liquid fuel etc., details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal shall also be displayed on the website of the generating company. The details should be available on its website on monthly basis for a period of three months.”*

104. The issue of ‘as received’ GCV specified in Regulation 30 of the 2014 Tariff Regulations for computation of energy charges was challenged by the Petitioner through various writ petitions filed before the Hon’ble High Court of Delhi (W.P. No.1641/2014-NTPC v CERC). The Hon’ble Court directed the Commission to decide the place from where the sample of coal should be taken for measurement of GCV of coal on ‘as received’ basis on the request of Petitioners. In terms of the directions of the Hon’ble High Court, the Commission vide order dated 25.1.2016 in Petition No. 283/GT/2014 (approval of tariff of Kahalgaon STPS for the period 2014-19) decided as under:

*“58. In view of the above discussion the issues referred by the Hon’ble High Court of Delhi are decided as under:*

*“(a) There is no basis in the Indian Standards and other documents relied upon by NTPC etc. to support their claim that GCV of coal on as received basis should be measured by taking samples after the crusher set up inside the generating station in terms of Regulation 30(6) of the 2014 Tariff regulations.*



*(b)The samples for the purpose of measurement of coal on as received basis should be collected from the loaded wagons at the generating stations either manually or through the Hydraulic Auger in accordance with provisions of IS 436(Part1/Section1)-1964 before the coal is unloaded. While collecting the samples the safety of personnel and equipment as discussed in this order should be ensured. After collection of samples the sample preparation and testing shall be carried out in the laboratory in accordance with the procedure prescribed in IS 436 (Part1/Section1)-1964 which has been elaborated in the CPRI Report to PSERC.”*

105. Review Petition No.11/RP/2016 filed by the Petitioner, against the aforesaid order dated 25.1.2016 in Petition No. 283/GT/2014, was rejected by the Commission vide order dated 30.6.2016. The Petitioner has also filed Petition No. 244/MP/2016 before this Commission inter alia praying for removal of difficulties in view of the issues faced by it in implementing the Commission's orders dated 25.1.2016 and 30.6.2016 with regard to sampling of coal from loaded wagon top for measurement of GCV. The Commission by its order dated 19.9.2018 disposed of the preliminary objections of the respondents therein and held that the petition is maintainable. Against this order, some of the respondents have filed appeal before the APTEL in Appeal Nos. 291/2018 (GRIDCO v NTPC & Ors) and the same is pending adjudication.

106. In Petition No. 291/GT/2014 filed by the Petitioner for determination of tariff of this generating station for the period 2014-19, the Petitioner had furnished GCV of coal on 'as billed' but not 'as received' basis for the preceding 3 months i.e. for January 2014, February 2014 and March 2014 that were required for determination of Interest on Working Capital (IWC). Therefore, the Commission vide its order dated 23.8.2016 in Petition No. 291/GT/2014 had considered GCV of coal on 'as billed' basis and provisionally allowed adjustment for total moisture while allowing the cost of coal towards generation & stock and two months energy charges in the working capital.

107. As per the Commission's order dated 25.1.2016 in Petition No. 283/GT/2014, the Petitioner, in Form-13F, has considered the average GCV of coal on "as received



basis” i.e. from wagon top for the period from October 2016 to March 2019 for the purpose of computation of working capital for the period 2014-19. The Petitioner has further submitted that CEA vide letter dated 17.10.2017 has opined that a margin of 85-100 kCal/ kg for pit-head station and a margin of 105-120 kCal/ kg for non-pit head station is required to be considered as loss of GCV of coal on “as received” and on “as fired” basis respectively. Accordingly, the Petitioner has considered a margin of 100 kCal/ kg on average GCV of coal for the period from October 2016 to March 2019 for computation of working capital of the generating station. Accordingly, the cost of fuel component in the working capital of the generating station based on (i) ‘as received’ GCV of coal for 30 months from October 2016 to March 2019 with adjustment of 100 kCal/ kg towards storage loss, (ii) landed price of coal for preceding three months i.e. January 2014 to March 2014 and (iii) GCV and landed price of Secondary fuel oil procured for the preceding three months i.e. January 2014 to March 2014 for the generating station, has been claimed by the Petitioner in the working capital as under:

|   | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
|---|----------------|----------------|----------------|----------------|----------------|
| Cost of Coal towards stock (15 days)      | 3376.35        | 3376.35        | 3376.35        | 3457.70        | 3457.70        |
| Cost of Coal towards Generation (30 days) | 6752.69        | 6752.69        | 6752.69        | 6915.41        | 6915.41        |
| Cost of Secondary fuel oil (2 months)     | 323.02         | 323.90         | 323.02         | 330.80         | 330.80         |

108. The Petitioner has claimed Energy Charge Rate (ECR) ex-bus of 125.379 paise/ kWh for the generating station based on GCV and price of fuel (coal and secondary fuel oil) as above.

109. The Petitioner, has submitted the additional details on the GCV on ‘as received’ basis which was sought by the Commission, in other similar matters, for the months of January, 2014 to March, 2014 which was uploaded in the website of the Petitioner and shared with the beneficiaries. The Petitioner vide its affidavit dated 30.6.2021 has



submitted that though the computation of energy charges moved from ‘as fired’ basis to ‘as received’ basis with effect from 1.4.2014 in terms of Regulation 30(6) of the 2014 Tariff Regulations, for calculation of IWC under Regulation 28(2) of the 2014 Tariff Regulations, the GCV should be as per ‘actuals’ for the three months preceding the first month for which tariff is to be determined. It has further submitted that for the period 2014-19, Regulation 28(2) of the 2014 Tariff Regulations unequivocally provide that the actual cost and GCV of the preceding three months shall be considered and for these preceding three months (January 2014 to March 2014) by virtue of it falling under the 2009 Tariff Regulations shall be computed on the basis of ‘as fired’ GCV. Referring to the judgment of the Hon’ble Supreme Court in PTC India v CERC (2010) 4 SCC 603 and the judgment of APTEL in NEEPCO v TERC (2006) APTEL 148, the Petitioner has submitted that the Commission is bound by the provisions of the tariff regulations and that purposive interpretation ought to be given to the 2014 Tariff Regulations and interest on working capital ought to be computed in terms of Regulation 28(2) of the 2014 Tariff Regulations on actual GCV i.e. ‘as fired’ GCV. The Petitioner has submitted that without prejudice to the above submissions, it has furnished the details of GCV on ‘as received’ basis for the months of January 2014 to March 2014 in compliance with the directions of the Commission in other similar matters as under:

| Sl. No. | Month          | Weighted Average GCV of coal received (EM basis) (kcal/kg) (A) | Total Moisture TM) (in %) (B) | Equilibrated Moisture (EM) (in %) (C) | Weighted Average GCV of coal received (TM basis) (kcal/kg) $D=A*(1-B\%)/(1-C\%)$ |
|---------|----------------|--|-------------------------------|---------------------------------------|--|
| 1       | January 2014   | 3826.42  | 8.71                          | 4.72                                  | 3666.18  |
| 2       | February 2014  | 3773.94  | 12.08                         | 4.39                                  | 3470.40  |
| 3       | March 2014     | 3851.40  | 8.12                          | 3.91                                  | 3682.66  |
|         | <b>Average</b> |  |                               |                                       | <b>3606.41</b>   |

110. The submissions have been considered. As stated in paragraph 108 above, the Petitioner in Form-13 F, has considered the average GCV of coal on “as received



basis” i.e. from wagon top for the period from October 2016 to March 2019 for the purpose of computation of working capital for the period 2014-19. In addition to the average GCV, it has also considered a margin of 100 kCal/ kg for computation of the working capital of the generating station.

111. Regulation 28(2) of the 2014 Tariff Regulations provides that the computation of cost of fuel as a part of IWC is to be based on the landed price and gross calorific value of the fuel, as per actuals, for the three months preceding the first month for which the tariff is to be determined. Thus, calculation of IWC for the period 2014-19, is to be based on such values for months of January 2014, February 2014 and March 2014. The Petitioner has not been able to furnish these values at the time of determination of tariff for the period 2014-19 in Petition No. 291/GT/2014. In the instant truing up petition, the Petitioner has proposed that instead of GCV for January 2014, February 2014 and March 2014, the Commission should consider the average values for months of October 2016 to March 2019 since the measurement of ‘as received’ GCV has been done in accordance with directions of the Commission vide order dated 25.1.2016 in Petition No. 283/GT/2014. In our view, the proposal of the Petitioner to consider the retrospective application of 30 months’ (October 2016 to March 2019) average of ‘as received’ GCV data in place of ‘as received’ GCV of the preceding three months (January 2014 to March 2014) is not acceptable, keeping in view that the average GCV for 30 months may not be commensurate to the landed cost of coal for the preceding three months to be considered for calculating IWC in terms of Regulation 28(2) of the 2014 Tariff Regulations and that due to efflux of time (gap of 30 month), the quality of coal extracted from the linked mines would have undergone considerable changes. Also, the consideration of loss of GCV of 100 kCal/ kg cannot be considered, as the same is not as per provisions of the 2014 Tariff Regulations.



112. It is observed that though the Petitioner has furnished the details of 'as received' GCV for the three months of January 2014 to March 2014 as above, it has submitted that GCV of fuel is to be considered 'on actuals' for January 2014 to March 2014 and as such, GCV is required to be considered on an 'as fired' basis. In other words, the Petitioner has contended that since the period of January 2014 to March 2014 falls in the period 2009-14, for measurement of GCV of coal, Regulation 18(2) read with Regulation 21(6) of the 2009 Tariff Regulations was applicable which mandates that generating company shall measure GCV on 'as fired' basis (and not on 'as received' basis). This submission of the Petitioner is also not acceptable in view of provisions of Regulation 21(6) of the 2009 Tariff Regulations that was amended on 31.12.2012, by addition of the following provisos:

*"The following provisos shall be added under Clause (6) of Regulation 21 of the Principal Regulations as under namely:*

*Provided that generating company shall provide to the beneficiaries of the generating station the details of parameters of GCV and price of fuel i.e. domestic coal imported coal e-auction coal lignite natural gas RLNG liquid fuel etc. as per the form 15 of the Part-I of Appendix I to these regulations:*

*Provided further that the details of blending ratio of the imported coal with domestic coal proportion of e-auction coal and the weighted average GCV of the fuels **as received** shall also be provided separately along with the bills of the respective month:*

*Provided further that copies of the bills and details of parameters of GCV and price of fuel i.e. domestic coal imported coal e-auction coal lignite natural gas RLNG liquid fuel etc. details of blending ratio of the imported coal with domestic coal proportion of e-auction coal shall also be displayed on the website of the generating company. The details should be available on its website on monthly basis for a period of three months."*

113. Thus, in terms of the above amendment to the 2009 Tariff Regulations, the details regarding the weighted average GCV of the fuels on 'as received' basis was also required to be provided by the Petitioner along with bills of the respective month. Also, bills detailing the parameters of GCV and price of fuel were to be displayed by the Petitioner on its website, on monthly basis.



114. As per SOR to the 2014 Tariff Regulations, we note that the main consideration of the Commission while moving from 'as fired' GCV to 'as received' GCV for the purpose of energy charges under Regulation 30(6) of the 2014 Tariff Regulations for the 2014-19 tariff period was to ensure that GCV losses which might occur within the generating station after receipt of coal are not passed on to the beneficiaries on account of improper handling and storage of coal by the generating companies. As regards the allowable (normative) storage loss within the generating station, CEA had observed that there is negligible difference between 'as received' GCV and 'as fired' GCV. As such, for the purpose of calculating energy charges, the Commission moved from 'as fired' GCV to 'as received' GCV under Regulation 30(6) of the 2014 Tariff Regulations without allowing any margin between the two measurements of GCV. Thus, 'as received' GCV was made applicable for the purpose of calculating working capital requirements based on the actual GCV of coal for the preceding three months of the first month for which tariff is to be determined in terms of Regulation 28(2) of 2014 Tariff Regulations. In case the submission of the Petitioner that 'as fired' is to be considered 'at actuals' for the preceding three months for purpose of IWC, the same would mean allowing (and passing through) all storage losses which would have occurred during the preceding three months (January 2014 to March 2014) for the period 2014-19. This, according to us, defeats the very purpose of moving from 'as fired' GCV to 'as received' GCV in the 2014 Tariff Regulations. In this background and keeping in view that in terms of amended Regulation 21(6) of the 2009 Tariff Regulations, the Petitioner is required to share details of the weighted average GCV of the fuel on 'as received' basis, we consider the fuel component and energy charges for two months based on 'as received' GCV of the preceding three months (January



2014 to March 2014) for the purpose of computation of IWC in terms of Regulation 28(2) of the 2014 Tariff Regulations.

115. The Petitioner has calculated GCV 3606.41 kCal/ kg which represents average of GCVs of preceding three months. However, the corresponding revised ECR has not been submitted by the Petitioner. The weighted average GCV for three months based on the net coal quantities as per Form-15 of the petition and the monthly GCVs as submitted by the Petitioner works out to 3668.76 kCal/kg.

116. Accordingly, the cost for fuel components in working capital has been computed considering the fuel details (price and GCV) as per Form-15 of the petition, except for 'as received' GCV of coal, which is considered as 3668.76 kCal/ kg, as discussed above. All other operational norms such as Station Heat Rate, Auxiliary Energy Consumption and Secondary Fuel Cost have been considered as per the 2014 Tariff Regulations for calculation of fuel components in working capital. Based on the above discussion, the cost for fuel component in working capital is worked out and allowed as under:

|   | <i>(Rs. in lakh)</i> |         |         |         |         |
|---|----------------------|---------|---------|---------|---------|
|   | 2014-15              | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Cost of Coal towards stock (15 days) generation corresponding to NAPAF      | 3491.02              | 3491.02 | 3491.02 | 3575.15 | 3575.15 |
| Cost of Coal towards Generation (30 days) generation corresponding to NAPAF | 6982.05              | 6982.05 | 6982.05 | 7150.29 | 7150.29 |
| Cost of Secondary fuel oil 2 months generation corresponding to NAPAF       | 323.02               | 323.90  | 323.02  | 330.80  | 330.80  |

### **Energy Charge Rate (ECR) for calculating working capital**

117. Regulation 30(6)(a) of the 2014 Tariff Regulations provides for computation and payment of Energy Charge for thermal generating stations:

*“(6): Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal place in accordance with the following formula:*

*(b) For coal based and lignite fired stations*



$$ECR = \{(GHR - SFC \times CVSF) \times LPPF / CVPF + SFC \times LPSFi + LC \times LPL\} \times 100 / (100 - AUX)$$

Where,

AUX = Normative auxiliary energy consumption in percentage.

CVPF = Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic metre, as applicable.

CVSF = Calorific value of secondary fuel, in kCal per ml.

ECR = Energy charge rate, in Rupees per kWh sent out.

GHR = Gross station heat rate, in kCal per kWh.

LC = Normative limestone consumption in kg per kWh.

LPL = Weighted average landed price of limestone in Rupees per kg.

LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable during the month.

SFC = Normative specific fuel oil consumption, in ml/ kWh

LPSFi = Weighted average landed price of secondary fuel in Rs/ ml during the month".

118. The Petitioner has claimed ECR of 125.379 Paise/ kWh for the generating station. The allowable ECR, based on the operational norms as specified in Regulation 36(A) of the 2014 Tariff Regulations and on weighted average of 'as received' GCV of 3668.76 kCal/ kg is worked out as under:

|                                | Unit      | 2014-19  |
|--------------------------------|-----------|----------|
| <b>Capacity</b>                | <b>MW</b> | 1000     |
| Gross Station Heat Rate        | kCal/kWh  | 2335     |
| Aux. Energy Consumption        | %         | 7.75%    |
| Weighted average GCV of Oil    | kCal/lit  | 10440.00 |
| Weighted average GCV of Coal   | Kcal/kg   | 3668.76  |
| Weighted average price of Oil  | Rs./KL    | 53312.05 |
| Weighted average price of Coal | Rs./MT    | 1839.82  |
| Rate of Energy Charge ex-bus   | Rs./kWh   | 1.295    |

119. The Energy Charges for two months for computation of working capital based on ECR of Rs.1.295/kWh, has been worked out as under:

*(Rs. in lakh)*

| 2014-15  | 2015-16  | 2016-17  | 2017-18  | 2018-19  |
|----------|----------|----------|----------|----------|
| 14476.62 | 14516.28 | 14476.62 | 14825.45 | 14825.45 |

120. Accordingly, the fuel component and energy charges for two months in working capital is allowed as under:

*(Rs. in lakh)*

|   | 2014-15  | 2015-16  | 2016-17  | 2017-18  | 2018-19  |
|---|----------|----------|----------|----------|----------|
| Cost of Coal for 45 days (15 days for coal stock and 30 | 10473.07 | 10473.07 | 10473.07 | 10725.44 | 10725.44 |



|  |          |          |          |          |          |
|--|----------|----------|----------|----------|----------|
| days for generation) corresponding to generation at NAPAF                    |          |          |          |          |          |
| Cost of Secondary fuel oil for 2 months corresponding to generation at NAPAF | 323.02   | 323.90   | 323.02   | 330.80   | 330.80   |
| Energy Charges for 2 months  | 14476.62 | 14516.28 | 14476.62 | 14825.45 | 14825.45 |

### **Maintenance Spares for Working Capital**

121. The Petitioner in Form-13B has claimed the maintenance spares in the working capital as under:

*(Rs. in lakh)*

| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------|---------|---------|---------|---------|
| 3325.88 | 3527.11 | 4241.05 | 4499.08 | 4878.18 |

122. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 20% of the O&M expenses as specified in the Regulation 29 of the 2014 Tariff Regulations. Accordingly, maintenance spares @ 20% of the O&M expenses (including the water charges and capital spares) allowed for the period 2014-19, is as under:

*(Rs. in lakh)*

| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------|---------|---------|---------|---------|
| 3321.70 | 3517.50 | 3727.87 | 3934.15 | 4175.19 |

### **Receivables for working capital**

123. Receivables equivalent to two months of capacity charges and energy charges has been worked out duly considering mode of operation of the generating station on secondary fuel, the same is allowed as under:

*(Rs. in lakh)*

|                                       | 2014-15         | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
|---------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Variable Charges - for two months (A) | 14476.62        | 14516.28        | 14476.62        | 14825.45        | 14825.45        |
| Fixed Charges - for two months (B)    | 8454.54         | 8651.05         | 8128.51         | 8118.52         | 8355.55         |
| <b>Total (C = A+B)</b>                | <b>22931.16</b> | <b>23167.33</b> | <b>22605.13</b> | <b>22943.98</b> | <b>23181.00</b> |



### **Working Capital for O&M Expenses (1 month)**

124. The O&M expenses for 1 month as claimed by the Petitioner in Form-13B is as under:

*(Rs. in lakh)*

| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------|---------|---------|---------|---------|
| 1385.78 | 1469.63 | 1767.10 | 1874.62 | 2032.58 |

125. For consideration of working capital, O&M expenses of 1 month are to be considered. The normative O&M expenses allowed as per Regulation 29(1) of the 2014 Tariff Regulations, water charges and capital spares allowed as per Regulation 29(2) of the 2014 Tariff Regulations have been considered for calculating O&M expenses for 1 month as part of the working capital.

126. Accordingly, in terms of Regulation 28(1)(a)(vi) of the 2014 Tariff Regulations, one month's O&M expenses allowed is as under:

*(Rs. in lakh)*

| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------|---------|---------|---------|---------|
| 1384.04 | 1465.63 | 1553.28 | 1639.23 | 1739.66 |

### **Rate of interest on working capital**

127. In terms of Regulation 28(3) of the 2014 Tariff Regulations, the rate of interest on working capital has been considered as 13.50% (Bank rate 10% + 350 bps).

Accordingly, interest on working capital has been computed as under:

*(Rs. in lakh)*

|   | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---|---------|---------|---------|---------|---------|
| Working capital for Cost of Coal towards Stock (15 days generation corresponding to NAPAF) (A)      | 3491.02 | 3491.02 | 3491.02 | 3575.15 | 3575.15 |
| Working capital for Cost of Coal towards Generation (30 days generation corresponding to NAPAF) (B) | 6982.05 | 6982.05 | 6982.05 | 7150.29 | 7150.29 |
| Working capital for Cost of Secondary fuel oil (2 months generation corresponding to NAPAF) (C)     | 323.02  | 323.90  | 323.02  | 330.80  | 330.80  |



|  |                 |                 |                 |                 |                 |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Working capital for Maintenance Spares (20% of O&M expenses) (D)               | 3321.70         | 3517.50         | 3727.87         | 3934.15         | 4175.19         |
| Working capital for Receivables (2 months of sale of electricity at NAPAF) (E) | 22931.16        | 23167.33        | 22605.13        | 22943.98        | 23181.00        |
| Working capital for O&M expenses (1 month of O&M expenses) (F)                 | 1384.04         | 1465.63         | 1553.28         | 1639.23         | 1739.66         |
| <b>Total Working Capital (G = A+B+C+D+E+F)</b>                                 | <b>38432.98</b> | <b>38947.44</b> | <b>38682.37</b> | <b>39573.59</b> | <b>40152.10</b> |
| Rate of Interest (H)   | 13.50%          | 13.50%          | 13.50%          | 13.50%          | 13.50%          |
| <b>Interest on Working Capital (I = G x H)</b>                                 | <b>5188.45</b>  | <b>5257.90</b>  | <b>5222.12</b>  | <b>5342.43</b>  | <b>5420.53</b>  |

128. The calculation of interest on working capital and energy charge calculated as above are subject to the final decision of the Commission in Petition No. 244/MP/2016.

### **Annual Fixed Charges fro the period 2014-19**

129. Based on the above, the annual fixed charges approved for the generating station for the period 2014-19, is summarised as under:

|                             | <i>(Rs. in lakh)</i> |                 |                 |                 |                 |
|-----------------------------|----------------------|-----------------|-----------------|-----------------|-----------------|
|                             | <b>2014-15</b>       | <b>2015-16</b>  | <b>2016-17</b>  | <b>2017-18</b>  | <b>2018-19</b>  |
| Depreciation                | 5369.26              | 5386.43         | 1245.75         | 51.08           | 44.84           |
| Interest on Loan            | 0.00                 | 0.00            | 0.00            | 0.95            | 50.82           |
| Return on Equity            | 23561.03             | 23674.47        | 23663.84        | 23645.92        | 23741.16        |
| Interest on Working Capital | 5188.45              | 5257.90         | 5222.12         | 5342.43         | 5420.53         |
| O&M Expenses                | 16608.49             | 17587.52        | 18639.37        | 19670.75        | 20875.96        |
| Compensation Allowance      | 1000.00              | 500.00          | 0.00            | 0.00            | 0.00            |
| Special Allowance           | 0.00                 | 3988.13         | 8482.74         | 9021.40         | 9594.25         |
| <b>Total</b>                | <b>51727.24</b>      | <b>56394.45</b> | <b>57253.82</b> | <b>57732.54</b> | <b>59727.57</b> |
| Unrecovered Depreciation    | 0.00                 | 0.00            | 179.12          | 0.00            | 0.00            |
| <b>Final AFC approved</b>   | <b>51727.24</b>      | <b>56394.45</b> | <b>57432.94</b> | <b>57732.54</b> | <b>59727.57</b> |

*Note: All figures are on annualized basis. All figures under each head have been rounded. The figure in total column in each year is also rounded. As such, the sum of individual items may not be equal to the arithmetic total of the column.*

130. The difference between the annual fixed charges already recovered in terms of the Commission's order dated 6.4.2017 in Review Petition 58/RP/2016 and the annual fixed charges determined by this order shall be adjusted in terms of Regulation 8(3) of the 2014 Tariff Regulations.



131. Petition No. 230/GT/2020 is disposed of in terms of the above.

**Sd/-**  
**(Pravas Kumar Singh)**  
**Member**

**Sd/-**  
**(Arun Goyal)**  
**Member**

**Sd/-**  
**(I.S. Jha)**  
**Member**

