

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 341/GT/2014**

**Coram:**

**Shri Gireesh B. Pradhan, Chairperson  
Shri A.K. Singhal, Member  
Dr. M.K. Iyer, Member**

**Date of Order : 24.3.2017**

**In the matter of:**

Determination of tariff of Kawas Gas Power Station (656.20 MW) for the period from 1.4.2014 to 31.3.2019.

**And in the matter of:**

NTPC Ltd  
NTPC Bhawan,  
Core-7, SCOPE Complex,  
7, Institutional Area, Lodhi Road,  
New Delhi-110003

.....**Petitioner**

**Versus**

1. Madhya Pradesh Power Management Company Limited  
Shakti Bhawan,  
Vidhyut Nagar,  
Jabalpur- 482008
2. Maharashtra State Electricity Distribution Company Limited,  
Prakashgad, Bandra (East),  
Mumbai - 400051
3. Gujarat Urja Vikas Nigam Limited,  
Vidyut Bhawan, Race Course,  
Vadodara - 390007
4. Chhattisgarh State Power Distribution Company Limited,  
P.O. Sundar Nagar,  
Danganiya, Raipur – 492013
5. Government of Goa,  
Electricity Department, Vidyut Bhawan,  
Panaji, Goa



6. Electricity Department,  
Administration of Daman and Diu  
Daman – 396210
7. Electricity Department,  
Administration of Dadra and Nagar Haveli,  
Silvasa

.....**Respondents**

**Parties present:-**

**For Petitioner:** Shri Ajay Dua, NTPC  
Shri Nishant Gupta, NTPC  
Shri Bhupinder Kumar, NTPC  
Shri Rajeev Choudhary, NTPC  
Ms. Suchitra Maggon, NTPC  
Shri Rohit lada, NTPC  
Shri Manish Jain, NTPC

**For Respondents:** Shri Rishabh Singh, Advocate, MPPMCL

**ORDER**

This petition has been filed by the petitioner, NTPC Ltd., for determination of tariff of Kawas Gas Power Station (656.20 MW) (hereinafter referred to as “the generating station”) for the period from 1.4.2014 to 31.3.2019, based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as “the 2014 Tariff Regulations”).

2. The generating station with a capacity of 656.20 MW comprises of four Gas Turbine units of 106 MW each and two Steam Turbine units of 116.10 MW. The date of commercial operation of different units of the generating station are as under:

|                                    | Capacity (MW) | Date of Commercial Operation (COD) |
|------------------------------------|---------------|------------------------------------|
| Unit – I (GT)                      | 106.00        | 1.6.1992                           |
| Unit – II (GT)                     | 106.00        | 1.8.1992                           |
| Unit – III (GT)                    | 106.00        | 1.9.1992                           |
| Unit – IV (GT)                     | 106.00        | 1.11.1992                          |
| Unit – V (ST) / Generating Station | 116.10        | 1.11.1993                          |
| Unit – VI (ST)                     | 116.10        | 1.9.1993                           |



3. The Commission by order dated 15.3.2017 in Petition No. 346/GT/2014 had revised the tariff of the generating station for the period 2009-14 after truing-up of the actual additional capital expenditure incurred in respect of the generating station for the period 2009-14 in terms of Regulation 6(1) of the 2009 Tariff Regulations. Accordingly, the capital cost and the annual fixed charges approved by order dated 15.3.2017 are as under:-

### Capital Cost

|                                | (₹ in lakh) |            |            |             |            |
|--------------------------------|-------------|------------|------------|-------------|------------|
|                                | 2009-10     | 2010-11    | 2011-12    | 2012-13     | 2013-14    |
| Opening Capital cost           | 153,691.71  | 153,471.02 | 153,258.82 | 153,239.95  | 151,552.28 |
| Additional capital expenditure | (-)220.69   | (-)212.20  | (-)18.87   | (-)1,687.67 | 23,322.13  |
| Closing capital cost           | 153471.02   | 153258.82  | 153239.95  | 151552.28   | 174874.41  |
| Average Capital cost           | 153581.37   | 153364.92  | 153249.39  | 152396.12   | 163213.35  |

### Annual Fixed Charges

|                             | (₹ in lakh)     |                 |                 |                 |                 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                             | 2009-10         | 2010-11         | 2011-12         | 2012-13         | 2013-14         |
| Depreciation                | 31.87           | 55.68           | 65.34           | 0.00            | 2277.51         |
| Interest on Loan            | 0.00            | 0.00            | 0.00            | 0.00            | 915.55          |
| Return on Equity            | 18057.10        | 17833.62        | 17621.29        | 17562.56        | 18735.60        |
| Interest on Working Capital | 7253.76         | 7287.97         | 7340.92         | 7364.20         | 7500.33         |
| O&M Expenses                | 9711.76         | 10269.53        | 10853.55        | 11476.94        | 12133.14        |
| <b>Total</b>                | <b>35054.50</b> | <b>35446.80</b> | <b>35881.09</b> | <b>36403.69</b> | <b>41562.14</b> |

4. The petitioner had filed the petition and has sought approval of tariff in accordance with the provisions of the 2014 Tariff Regulations. The capital cost and annual fixed charges claimed by the petitioner for the period 2014-19 are as under:-

### Capital Cost

|                                | (₹ in lakh) |           |           |           |           |
|--------------------------------|-------------|-----------|-----------|-----------|-----------|
|                                | 2014-15     | 2015-16   | 2016-17   | 2017-18   | 2018-19   |
| Opening Capital cost           | 185923.98   | 188795.66 | 188795.66 | 189145.66 | 189145.66 |
| Additional capital expenditure | 2871.68     | 0.00      | 350.00    | 0.00      | 0.00      |
| Closing capital cost           | 188795.66   | 188795.66 | 189145.66 | 189145.66 | 189145.66 |
| Average Capital cost           | 187359.82   | 188795.66 | 188970.66 | 189145.66 | 189145.66 |



## Annual Fixed Charges

|                             | (₹ in lakh)     |                 |                 |                 |                 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                             | 2014-15         | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
| Depreciation                | 4741.73         | 7219.64         | 7247.92         | 7282.38         | 7282.38         |
| Interest on Loan            | 2139.12         | 2166.88         | 1624.04         | 1105.28         | 610.18          |
| Return on Equity            | 17736.30        | 17824.08        | 17834.78        | 17845.48        | 17845.48        |
| O&M Expenses                | 5899.32         | 6019.65         | 6047.92         | 6092.03         | 6139.35         |
| Interest on Working Capital | 10209.11        | 10849.82        | 11532.24        | 12256.54        | 13029.42        |
| <b>Total</b>                | <b>40725.58</b> | <b>44080.06</b> | <b>44286.90</b> | <b>44581.71</b> | <b>44906.81</b> |

5. The petitioner had filed the additional information in compliance with the directions of the Commission and has served copies on the respondents. Reply has been filed by the respondent, MPPMCL, and the petitioner has filed its rejoinder to the said replies. We now proceed to examine the claim of the petitioner, on prudence check, based on the submissions and the documents available on records as stated in the subsequent paragraphs.

### Capital cost as on 1.4.2014

6. Clause (1) of Regulation 9 of the 2014 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check, in accordance with this regulation shall form the basis of determination of tariff for existing and new projects. Clause (3) of Regulation 9 of the 2014 Tariff Regulations provides as under:

*"9(3) The Capital cost of an existing project shall include the following: (a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014;*

*(b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 14; and*

*(c) expenditure on account of renovation and modernization as admitted by this Commission in accordance with Regulation 15.*

7. Clause (6) of Regulation 9 of the 2014 Tariff Regulations provides as under:



"9(6) The following shall be excluded or removed from the capital cost of the existing and new project:

(a) The assets forming part of the project, but not in use;

(b) De-capitalization of Asset;

(c) xxxxxx; and

(d) The proportionate cost of land which is being used for generating power from generating station based on renewable energy:

Provided that any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment shall be excluded from the Capital Cost for the purpose of computation of interest on loan, return on equity and depreciation;"

8. The petitioner has claimed opening capital cost of ₹185923.98 lakh as on 1.4.2014 as detailed under:

|  | (₹ in lakh) |
|--|-------------|
| Capital cost as on 31.3.2014 as per Commission's order dated 1.8.2013 in Petition No. 25/GT/2013 | 153621.65   |
| Adjustment   | 32302.33    |
| Capital cost claimed as on 1.4.2014  | 185923.98   |

9. The petitioner has claimed opening capital cost of ₹185923.98 lakh (153621.65+32302.33) after adjustment of ₹32302.33 lakh as on 1.4.2014 in terms of order dated 1.8.2013 in Petition No. 25/GT/2013. However, the Commission vide order dated 15.3.2017 in Petition No. 346/GT/2014 has determined the closing capital cost as on 31.3.2014 as ₹174874.41 lakh.

10. It is noticed that the claim of capital cost by the petitioner as on 31.3.2014 in this petition is based on the fact that the true-up petition for 2012-14 was pending for approval of the Commission. However, as the capital cost has been revised by order dated 15.3.2017 in Petition No. 346/GT/2014 to ₹174874.41 lakh as on 31.3.2014, same has considered as the opening capital cost of ₹174874.41 lakh as on 1.4.2014 for the determination of tariff for the period 2014-19.



## **Additional Capital Expenditure**

11. Regulation 14 (3) of the 2014 Tariff Regulations provides as under:

*"14.(3) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date, may be admitted by the Commission, subject to prudence check:*

*(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;*

*(ii) Change in law or compliance of any existing law;*

*(iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies or statutory authorities responsible for national security/internal/ security;*

*(iv) Deferred works relating to ash pond or ash handling system in the original scope of work;*

*(v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;*

*(vi) Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;*

*(vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than mal / lignite based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;*

*(viii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;*

*(ix) In case of transmission system, any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement due to obsolescence of technology, replacement of switchyard equipment due to increase of fault level, tower strengthening, communication equipment, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not*



covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and

(x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:

Provided further that any capital expenditure other than that of the nature specified above in (i) to (iv) in case of coal/lignite based station shall be met out of compensation allowance:

Provided also that if any expenditure has been claimed under Renovation and Modernization (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation.

12. The additional capital expenditure including R&M as allowed in order dated 15.3.2017 in Petition No. 346/GT/2014 is as under:

|  |             | (₹ in lakh) |             |             |                 |  |
|--|-------------|-------------|-------------|-------------|-----------------|--|
| Head of Work/Equipment   | 2009-10     | 2010-11     | 2011-12     | 2012-13     | 2013-14         |  |
| R&M Package for Life Extension                                     |             |             |             |             |                 |  |
| <b>Gas Turbine Life Extension Package</b>                          |             |             |             |             |                 |  |
| R&M of Gas Turbine 1A  | 0.00        | 0.00        | 0.00        | 0.00        | 14334.39        |  |
| R&M of Gas Turbine 1B  | 0.00        | 0.00        | 0.00        | 0.00        | 12747.50        |  |
| R&M of Gas Turbine 2B  | 0.00        | 0.00        | 0.00        | 0.00        | 12491.83        |  |
| <b>C&amp;I Control Systems for Gas Turbines and Steam Turbines</b> |             |             |             |             |                 |  |
| R&M of C&I Gas Turbine 1A  | 0.00        | 0.00        | 0.00        | 0.00        | 663.32          |  |
| R&M of C&I Gas Turbine 1B  | 0.00        | 0.00        | 0.00        | 0.00        | 662.31          |  |
| R&M of C&I Gas Turbine 2B  | 0.00        | 0.00        | 0.00        | 0.00        | 658.05          |  |
| R&M of C&I Steam Turbine 1C  | 0.00        | 0.00        | 0.00        | 0.00        | 1478.53         |  |
| <b>Total (A)</b>   | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>43035.93</b> |  |
| Less: on account of capital spares included in                     |             |             |             |             | 4399.50         |  |



| Head of Work/Equipment   | 2009-10          | 2010-11          | 2011-12         | 2012-13           | 2013-14            |
|--|------------------|------------------|-----------------|-------------------|--------------------|
| O&M  |                  |                  |                 |                   |                    |
| <b>Total Additional Expenditure Claimed - B</b>                    |                  |                  |                 |                   | <b>38636.43</b>    |
| <b>Change in Law</b>   |                  |                  |                 |                   |                    |
| Procurement of CCTV  | 0.00             | 0.00             | 44.95           | 0.26              | 0.00               |
| Township Metering System   | 8.62             | 0.00             | 0.00            | 0.00              | 0.00               |
| Ozone Analysers at AAQMS stations                                  | 0.00             | 0.00             | 0.00            | 0.00              | 0.00               |
| Continuous Airline Breathing Equipment and Breathing Apparatus set | 0.00             | 0.00             | 0.00            | 0.00              | 0.00               |
| Residential Quarters and Internal Electrification                  | 0.00             | 0.00             | 0.00            | 0.00              | 0.00               |
| Hydraulic Stacker 1.5.Ton Capacity                                 | 0.00             | 0.00             | 0.00            | 0.00              | 0.00               |
| Portable ultrasonic Thickness Gauge Meter                          | 0.00             | 0.00             | 0.00            | 0.00              | 0.00               |
| Digital Compression Testing Machine                                | 0.00             | 0.00             | 0.00            | 0.00              | 0.00               |
| Multi Zone Door Frame Type Metal Detector                          | 0.00             | 0.00             | 0.00            | 0.00              | 0.00               |
| Hand Held Metal Detector   | 0.00             | 0.00             | 0.00            | 0.00              | 0.00               |
| <b>Total (C)</b>   | <b>8.62</b>      | <b>0.00</b>      | <b>44.95</b>    | <b>0.26</b>       | <b>0.00</b>        |
| Discharge of Un-discharge Liabilities                              | 92.30            | 0.00             | 0.00            | 4.52              | 0.00               |
| <b>Total (D)</b>   | <b>100.92</b>    | <b>0.00</b>      | <b>44.95</b>    | <b>4.78</b>       | <b>0.00</b>        |
| De-capitalization  |                  |                  |                 |                   |                    |
| De-capitalization of C&I Control System                            | (-)14.96         | (-)18.52         | (-)59.83        | 0.00              | 0.00               |
| De-capitalization of Admitted spares                               | (-)280.11        | (-)70.14         | (-)2.31         | 0.00              | 0.00               |
| De-capitalization of Admitted MBOAs                                | (-)26.54         | (-)123.53        | (-)1.66         | 0.00              | 0.00               |
| GT-1A/1B/2B De-capitalization during R&M                           | 0.00             | 0.00             | 0.00            | (-)1660.68        | (-)17060.14        |
| <b>Total (E)</b>   | <b>(-)321.61</b> | <b>(-)212.20</b> | <b>(-)63.82</b> | <b>(-)1660.68</b> | <b>(-)17060.14</b> |
| <b>Works adjustment</b>  |                  |                  |                 |                   |                    |
| SAP  | 0.00             | 0.00             | 0.00            | (-)1.36           | 0.00               |
| <b>Total – F</b>   | <b>(-)220.69</b> | <b>(-)212.20</b> | <b>(-)18.87</b> | <b>(-)1657.26</b> | <b>21576.29</b>    |
| <b>Total exclusions not allowed – G</b>                            | <b>0.00</b>      | <b>0.00</b>      | <b>0.00</b>     | <b>(-)30.41</b>   | <b>(-)35.93</b>    |
| <b>Grand total with exclusions (F+G)</b>                           | <b>(-)220.69</b> | <b>(-)212.20</b> | <b>(-)18.87</b> | <b>(-)1687.67</b> | <b>21540.36</b>    |

13. The petitioner has submitted the additional capital expenditure towards the Renovation and Modernization (R&M) works of three Gas Turbine (1A/1B/2B) and R&M of C&I of Steam Turbine (ST 1C) had been completed during the period 2009-14. The



petitioner has further submitted that R&M work of the remaining Gas Turbine (2A) (both C&I system and Life extension work) and R&M works of C&I system of remaining Steam Turbine (ST 2C) is planned to be completed during the year 2014-15. Accordingly, it has submitted that the R&M of the remaining GT has been carried out and the break-up of the total projected additional capital expenditure claimed including expenditure on R&M during the period 2014-19 is as under:

| <i>(₹ in lakh)</i>   |                          |                 |             |               |             |             |
|--|--------------------------|-----------------|-------------|---------------|-------------|-------------|
| Head of Work/Equipment   | Regulation               | 2014-15         | 2015-16     | 2016-17       | 2017-18     | 2018-19     |
| 1.R&M Package for Life Extension   |                          |                 |             |               |             |             |
| 1.1.Life extension of gas turbine and up gradation of control systems of GTs, WHRBSs and STs | 14(3)(vii)               | 18199.44        | 0.00        | 0.00          | 0.00        | 0.00        |
| <b>A. Total (R&amp;M)</b>  |                          | <b>18199.44</b> | <b>0.00</b> | <b>0.00</b>   | <b>0.00</b> | <b>0.00</b> |
| 2.1 Replacement of Halon Fire Protection system  | 14(3)(vii)               | 155.22          | 0.00        | 0.00          | 0.00        | 0.00        |
| 2.2 Construction of 16 nos B-Type and 29 nos D type Quarters                                 | 14(3)(vii)               | 264.57          | 0.00        | 0.00          | 0.00        | 0.00        |
| 2.3 On line water washing system for Gas Turbine   | 14(3)(vii)               | 351.43          | 0.00        | 0.00          | 0.00        | 0.00        |
| 2.4 R O Plant for DM water   | 14(3)(vii)               | 349.00          | 0.00        | 0.00          | 0.00        | 0.00        |
| 2.5 Drinking water improvement   | 14(3)(vii)               | 54.96           | 0.00        | 0.00          | 0.00        | 0.00        |
| 2.6 Construction of Utility Culverts for crossing utilities                                  | 14(3)(ii)                | 150.00          | 0.00        | 0.00          | 0.00        | 0.00        |
| 2.7 Foot-over Bridge   | 14(3)(ii) and 14(3)(iii) | 0.00            | 0.00        | 350.00        | 0.00        | 0.00        |
| <b>B. Total additional capital expenditure claimed</b>                                       |                          | <b>19524.62</b> | <b>0.00</b> | <b>350.00</b> | <b>0.00</b> | <b>0.00</b> |
| 3 De-capitalisation on account of above capitalisation mentioned in R&M-1.                   |                          | (-)16652.94     | 0.00        | 0.00          | 0.00        | 0.00        |
| <b>Net Total additional capital expenditure</b>  |                          | <b>2871.68</b>  | <b>0.00</b> | <b>350.00</b> | <b>0.00</b> | <b>0.00</b> |



14. It is observed from the above that the additional capital expenditure of ₹19524.62 lakh claimed in the year 2014-15 comprises of mainly R&M works of GT(2A) of ₹18199.44 lakh and the remaining expenditure of ₹1325.18 lakh towards other capital expenditures where the additional capital expenditure claimed in 2016-17 is ₹350.00 lakh towards foot-over bridge. No additional capital expenditure has been claimed for the year 2015-16, 2017-18 and 2018-19 respectively. We now examine the claim of the petitioner for additional capital expenditure as stated in the subsequent paragraphs:

**Additional capital expenditure against claims already approved during 2009-14 but could not be capitalized upto 31.3.2014**

**R&M Package (GT 2A)**

15. As stated that the petitioner has claimed R&M package of ₹43035.93 lakh (including IDC and FC etc) in 2013-14 in terms of the Judgment of the Tribunal dated 17.4.2014 in Appeal no. 245 of 2013 and the Commission vide order dated 15.3.2017 in Petition No. 346/GT/2014 has allowed the same as under:

| <b>Head of Work/Equipment</b>                         | <b>2013-14</b>  |
|---|-----------------|
| R&M Package   | 43035.93        |
| Less Reduction in Capital expenditure due to O&M cost | (-)4399.50      |
| <b>Total (on actual values)</b>                       | <b>38636.43</b> |
| Total De-capitalization                               | (-)17060.14     |
| <b>Net Additional Capital Expenditure Allowed</b>     | <b>21576.29</b> |

16. Based on the above, the petitioner had submitted that the Renovation and Modernization (R&M) works of three Gas Turbine (1A/1B/2B) and R&M of C&I of Steam Turbine (ST 1C) had already been completed during the period 2009-14. It has further submitted that R&M work of the remaining Gas Turbine (2A) (both C&I system and life extension work) and R&M works of C&I system of remaining steam turbine (ST 2C) has been planned to be completed during the year 2014-15. Accordingly, the petitioner has



prayed that the Commission may allow the additional capital expenditure claimed on these balance R&M works under Regulation 14 of the 2014 Tariff Regulations.

17. The respondent MPPMCL has submitted that from the perusal of provisions of Regulation 14(3)(vii) of Tariff Regulations, 2014, it could be seen that the additional capital expenditure which has become necessary for efficient operation of generating station or due to obsolescence of technology or due to increase in fault level only are permissible subjected to technical justifications and recommendation of the independent agency. It has further submitted that almost all the additional capitalizations claimed by the petitioner under Regulation 14(3)(vii) mentioned in form 9A for the period 2014-15 are not admissible under Regulation 14(3)(vii).

18. The respondent, MPPMCL, has submitted that the petitioner has projected additional capital expenditure for completion of GT (2A) and ST (2C) during the year 2014-15 and since the said year is expired, therefore the petitioner may be directed to submit the dates of completion of R&M works of GT (2A) and ST(2C) and also the audited accounts of expenditure incurred on the same. The respondent has further submitted that in terms of Regulation 15(3), any expenditure for Renovation of Gas/ Steam Turbine is allowed only after 25 years of operation from its date of Commercial operation. It has stated that the COD of the project is on 1.11.1993, and hence the useful life of 25 years from COD will complete on 31.10.2018 and therefore, the petitioner is not entitled for any additional capital expenditure on GT (2A) and ST(2C) before 31.10.2018. Accordingly, the respondent has submitted that the additional capital expenditure incurred prior to 31.8.2018 may not be allowed.

19. In response the petitioner submitted that the additional capital expenditure projected to be incurred during the tariff period 2014-19 has been claimed in accordance with clause 3(vii) of Regulation 14 of the CERC (Terms and Conditions of Tariff),



Regulations 2014. The petitioner has further submitted that the present claim of additional capital expenditure comprises ongoing works which were awarded during 2009-14 and are scheduled to be completed during 2014-19 tariff period. It has further identified new works which are necessarily required to be implementing during 2014-19 tariff period for compliance of change in law, for safety & security and efficient operation of the generating station.

20. The petitioner has also submitted that the R&M work of three Gas Turbines (GT 1A/1B/2B) along with R&M of C&I system of three GTs and one steam turbine (ST 1C) had been completed during the year 2013-14 and the same had been allowed by the Commission vide order dated 15.3.2017 in Petition No. 346/GT/2014. In terms of the prayer of the petitioner, the works of remaining Gas Turbine (GT 2A) along with C&I system and R&M of remaining steam turbine (ST 2C) have also completed during the year 2014-15 as under:

| Unit  | Date of Turbine put to use |
|-------|----------------------------|
| GT 2A | 14.9.2014                  |
| ST 2C | 28.8.2014                  |

21. Accordingly, the petitioner has submitted that the major portion of the work had already been completed in the tariff period 2009-14 and the balance R&M work for remaining GT and ST is capitalized during the year 2014-15.

22. We have examined the matter. The Commission vide its order dated 15.3.2017 in Petition No. 346/GT/2014 had approved the R&M of three Gas Turbine (GT 1A/1B and 2B) with R&M of C&I of one steam Turbine (ST 1C) completed during the period 2009-14 by order dated 15.3.2017, where total expenditure of ₹21576.29 lakh after de-capitalization has been allowed. In terms of the judgment of the Tribunal's and observation in the said order of Commission, the petitioner has claimed expenditure on R&M for remaining Gas Turbine (GT 2A) along with R&M of C&I of remaining steam



turbine (ST 2C) which has been completed during the year 2014-15. In the above background, we allow the expenditure of ₹18199.44 lakh on R&M package towards GT (2A) and 1 ST (ST 2C) for the year 2014-15 under Regulation 14(3)(vii) of the 2014, Tariff Regulations.

### **Capital Spares**

23. Since R&M on GTs are in the nature of major overhaul, suitable adjustment of capital spares which are included in the normative operation and maintenance (O&M) expenses is required. The quantum of capital spares included in O&M corresponding to major overhaul is to the tune of ₹5866.00 lakh (expenditure towards hot gas path components) and the same has been deducted from the additional capital expenditure for CEA approved R & M scheme. The petitioner has deducted the same on pro-rata basis, hence corresponding to one GT 2A, the deduction on account of capital spares works out to be ₹1466.50 lakh ( $5866 \times 1/4$ ) which has been deducted in the year 2014-15.

### **De-capitalization due to R&M**

24. The petitioner has claimed de-capitalization of ₹1660.68 in 2012-13, ₹6093.91 lakh in 2013-14 and ₹16652.94 lakh in 2014-15. The petitioner has also carried out major R&M work of 3GTs (GT1A, GT1B and GT2B) in 2013-14 and the remaining work of one GT (GT2A) during the year 2014-15. The petitioner has submitted that it has carried out complete de-capitalization of old assets with regard to GT 2A and ST 2C amounting to ₹16652.94 lakh in 2014-15. It is observed that the petitioner has claimed major R&M works of GT 1A, GT 1B and GT 2B i.e. for 3GTs during the period 2009-14. However, the petitioner has carried out complete de-capitalization for 4 GTs in 2014-15. The Commission in line with its order dated 15.3.2017 in Petition No. 346/GT/2014 has considered complete de-capitalization of assets replaced with regards to the generating station on pro-rata basis for the years 2013-14 and 2014-15, however, the de-capitalization claimed for the year 2012-13 remains the same. Further, the Commission



has considered the de-capitalization amounting to ₹5686.71 lakh  $\{(22746.85 \times (1/4))$  total amount of de-capitalization claimed by the petitioner during the year 2013-14 and 2014-15} during the year 2014-15.

25. Since major R&M work of GT1A, GT 1B and GT2B and R&M of C&I of ST 1C has been carried out by the petitioner in 2013-14, major de-capitalization of assets should be considered during the same year. Hence, out of total de-capitalization during the R&M of the generating station, major de-capitalization of ₹17060.14 lakh in the year 2013-14 and the balance amount of ₹5686.71 lakh in the year 2014-15 has been considered.

26. Based on the above discussion, the gross R&M and net R&M as allowed in 2014-15 is as under:

| <i>(₹ in lakh)</i>                      |                 |
|---|-----------------|
|   | 2014-15         |
| Gross R&M for GT (2A)                   | 18199.44        |
| Deductions on account of capital spares | 1466.50         |
| Less: De-capitalization due to R&M      | 5686.71         |
| <b>Net R&amp;M for GT (2A)</b>          | <b>11046.23</b> |

### **Other claims**

#### **Regulation 14(3)(vii)**

##### **RO Plant for DM water**

27. The petitioner has claimed additional capital expenditure of ₹349.00 lakh in 2014-15 towards Reverse Osmosis plant (RO) for DM water under Regulation 14(3)(vii) of the 2014 Tariff Regulations. The petitioner has further submitted that the work was awarded in 2012-13 and the petitioner had incurred an expenditure of ₹236.00 lakh up to 31.3.2014. The petitioner has also submitted that as per the original schedule, the work was to be completed during 2013-14, but due to non supply of critical material, the completion of work got delayed and was expected to be completed in 2014-15. The



petitioner has further submitted that as the work was already allowed by the Commission during the period 2009-14, the Commission may please allow the same.

28. The respondent MPPMCL submitted that the Commission has already allowed ₹272.00lakh vide order dated 1.8.2013. It has further submitted that due to delay on the part of petitioner the cost of work has increased and hence the additional capital expenditure claimed may not be allowed. In response, the petitioner has submitted that the Commission in order dated 1.8.2013 in Petition no 25/GT/2013 had allowed the expenditure based on the budgetary offer available at that time and subsequent to the award of work in 2012-13, the present claim has been made based on the final awarded value. In view of the above, the petitioner has prayed that the expenditure claimed may be allowed.

29. The matter has been examined. It is noted that the Commission in order dated 1.8.2013 had allowed the projected expenditure on this and on the ground that provision of RO units in DM plant shall enhance the output and quality of DM water and improve the boiler chemistry parameters. The relevant portion of the order dated 1.8.2013 in Petition No. 25/GT/2013 is as under:

*“22. The petitioner has claimed projected expenditure of ₹20.00 lakh during 2012-13 and ₹250.00 lakh during 2013-14 for implementation of Reverse Osmosis plant (RO) for DM water. The petitioner has submitted that the expenditure is necessary due to considerable deterioration in the intake water from Tapti River which is the only source of water for the generating station. It has also submitted that the total dissolved solids (TDS) have increased to 425 ppm against the design value of 245 ppm and the Total Organic Carbon (TOC) have increased to more than 10 ppm from earlier levels of 2-3 ppm and due to this there is a tremendous increase in the ionic load resulting in decrease in production of DM water to almost half the rate i.e. 25 to 30 Cu. M / hr from 50 Cu.M/hr (designed capacity) from each stream. The net result of this is the Output between Regeneration (OBR) has reduced from designed quantity of 600 Cu.M to about 300 Cu.M. It has further submitted that the above reduction in output has also effected the supply of DM water to WHRB's which requires large make up due to drastic increase in frequent Start -up and Shut down of Gas turbine for last 2-3 years. Further, due to increase in organic content resulting in fouling of resins requires frequent treatment of Cation & Anion resins by double the strength of acid and brine solutions this, further increase the non availability DM water streams for DM production. The increase of Organic content is also affecting the boiler chemistry parameters as the conductivity in DM water has increased to more than 0.4 uS/cm from the design conductivity of below 0.2 uS/cm*



*(Design conductivity). The petitioner has submitted that the availability/provision of RO units in DM plant shall enhance the output and quality of DM water and improve the boiler chemistry parameters and is therefore necessary for successful operation of the plant. Accordingly the petitioner has prayed that the expenditure may be allowed under Regulation 9(2)(vi) of the 2009 Tariff Regulations. The respondent, MPPMCL has submitted that the proposed additional capital expenditure on this asset may not be allowed as the same is not covered under Regulation 9(2)(vi) of the 2009 Tariff Regulations. Considering the submissions of the petitioner and keeping in view that the provision of RO units in DM plant shall enhance the output and quality of DM water and improve the boiler chemistry parameters, we allow the capitalization of this asset under Regulation 9(2)(vi) of the 2009 Tariff Regulations.*

30. However, the claim has not been made in Petition No. 346/GT/2014 (true-up of tariff for 2009-14). Considering the fact that the additional capital expenditure claimed is based on the awarded value, we allow the expenditure claimed of ₹349.00 lakh under Regulation 14(3)(vii) of the 2014, Tariff Regulations.

**Additional capital expenditure against claims disallowed in 2009-14 and claimed during the period 2014-19**

**On line water washing system for Gas Turbine**

31. The petitioner has claimed additional capital expenditure of ₹351.43 lakh in 2014-15 towards On line water washing system for Gas Turbine under Regulation 14(3)(vii) of 2014 Tariff Regulation. The petitioner has further submitted that the work was necessary to be carried out at for the generating station for all Gas Turbines, as with the continuous running of GTs, the compressor blades were getting fouled with deposition of fine dust which was affecting the compressor performance. The petitioner has submitted that at present the compressor is being washed offline only, and whenever opportunity shut down is available. It is however submitted that, with the online Compressor washing technology, continuous cleaning of the blades would be carried out thereby ensuring Plant Availability and rated output from generating station. The petitioner further submitted that the claim for this asset was not considered by Commission order dated 1.8.2013 in Petition No. 25/GT/2013 on the grounds that the some Renovation and Modernization work of Gas Turbine is expected to be completed in 2014-15, as per the



submission of the petitioner. Accordingly, it has submitted that the additional capital expenditure for this asset has been claimed during the period 2014-19. The petitioner has further submitted that the work of online compressor washing system had started in 2013-14 and the petitioner has incurred an expenditure of ₹244.00 lakh up to 31.3.2014. The petitioner has also submitted that the said work along with the life extension R&M work of all GTs is anticipated to be completed in 2014-15. The petitioner has therefore, requested that the Commission may allow the expenditure claimed under this head.

32. The respondent MPPMCL has submitted that the expenditure is not covered under Regulation 14(3)(vii) and hence may not be allowed. In response the petitioner has submitted that the Petitioner has planned and undertaken the said work for all the Gas Turbine. Accordingly, it has submitted that the expenditure claimed may be considered in 2014-15 as per the submission made by the petitioner.

33. We have examined the matter. Since the expenditure claimed was not approved by the Commission in order dated 1.8.2013 in Petition No. 25/GT/2013 on the ground that the said expenditure is necessary for ensuring Plant Availability and rated output from the generating station and could be consider only after the R&M of the generating station. The relevant portion of the order dated 1.8.2013 in Petition No. 25/GT/2013 is as under:

*“21. The petitioner has claimed expenditure of ₹276 lakh during 2012-13 towards on-line compressor washing of GTs. The petitioner has stated that due to continuous running of GTs, the compressor blades get fouled with deposition of fine dust which affects the compressor performance resulting in reduced GT power output. It has also submitted that at present, the compressor is being washed off line only, whenever opportunity during shutdown is available. The respondent, MPPMCL has submitted that the proposed additional capital expenditure on this asset may not be allowed as the same is not covered under Regulation 9(2)(vi) of the 2009 Tariff Regulations. In response, the petitioner has clarified that the expenditure on this asset is necessary for ensuring plant availability and maintaining the rated output and hence claimed under Regulation 9(2)(vi). We have examined the matter. As stated, the proposed expenditure on R&M is to be incurred from the year 2012-13 onwards and would be completed during 2014-15 only. Considering the submissions of the*



*petitioner that the expenditure is necessary for ensuring plant availability and rated output from the generating station and since this work has been planned in the R&M package accordingly, we are of the view that the expenditure claimed could only be considered during the next tariff period. Accordingly, the expenditure claimed by the petitioner on this count during the period 2012-13 has not been allowed.”*

34. Since the R&M of all the GTs and STs is completed during 2014-15 and since the expenditure was approved as a part of R&M package vide order dated 1.8.2013, the expenditure claimed on account of on line water washing system for Gas Turbine has been allowed.

#### **Construction of 16 nos B-type and 29 nos D type Quarters**

35. The petitioner has claimed additional capital expenditure of ₹264.57 lakh in 2014-15 towards Construction of 16 nos. B-type and 29 nos. D type Quarters under Regulation 14(3)(vii) of 2014 Tariff Regulation. The petitioner has submitted that due to natural calamities i.e., earth quake and severe floods in the area, the condition of 50 no of Quarters (D and B Type) has deteriorated. It has further submitted that after thorough examination it was felt that despite comprehensive maintenance undertaken by the petitioner, these quarters continue to have severe problem like roof leakages, floor settlement, wide structural cracks etc which have made these houses inhabitable. The petitioner has further submitted that these dwelling units were demolished during the year 2010-11 for Construction of new quarters. The petitioner has also submitted that it had de-capitalized an amount of ₹50.41 lakh for these demolished quarters in 2010-11 and the same has been reduced from the capital cost approved in order dated 1.8.2013. The petitioner has further stated that as the inhabitable quarters were demolished, it resulted in a urgent need for construction of new quarters in order to provide residential accommodation for the employees of the generating station and is essential for efficient and successful operation of the generating station. The petitioner has submitted that the work of 'D' type quarters has already been completed in 2013-14 and capitalized in



books of accounts and the projected capital expenditure in 2014-15 pertains to the balance work of 'B' type quarters which is in progress and anticipated to be completed in the current control period i.e. 2014-19. The petitioner has therefore requested that the Commission may allow the expenditure claimed on account of Construction of 16 nos B-type and 29 nos D type Quarters.

36. The respondent MPPMCL has submitted that the petitioner has not submitted any documents / report of independent agency to support its claim and hence the claim may not be admitted.

37. The matter has been examined. The petitioner has claimed additional capital expenditure of ₹1781.77 lakh in 2013-14 towards residential quarters and internal electrification and the Commission vide order dated 15.3.2017 has allowed the claim of the petitioner towards construction of residential quarters and internal electrification. It is noticed that since this work pertains to the balance work which was already allowed by the Commission vide order dated 15.3.2017 in Petition No. 346/GT/2014, therefore, the Commission is inclined to allow above expenditure claimed on account of construction of 'B' type quarters.

### **Drinking Water Improvement**

38. The petitioner has claimed additional capital expenditure of ₹54.96 lakh in 2014-15 towards drinking water improvement. The petitioner has submitted that the present system of supply of potable water to generating station is under operation since 1992. The petitioner has stated that the existing system is facing acute problem of dirty water and worms due to deterioration of CI pipelines connecting the entire system of water supply i.e. from pumps to water tanks and distribution channels. It has further submitted that the input raw water quality from river Tapi has also deteriorated on account of increase in ionic and organic load and hence the above consumed water is causing



frequent stomach related diseases to employees and their families. Hence, the petitioner, in order to improve the quality of drinking water making it fit for drinking, has envisaged installing filtration plant along with replacement of pipelines. The petitioner has accordingly, submitted that as this expenditure is proposed to be incurred towards the health of employees & their families, the Commission may allow the said expenditure.

39. The respondent MPPMCL has submitted that the expenditure is not covered under Regulation 14(3)(vii) and hence may not be allowed. In response, the petitioner has submitted that the said work is required for successful and efficient operation of the generating station for drinking water improvement by installation of filtration plant along with replacement of pipelines. It has also submitted that the said work was awarded during the period 2009-14 and is expected to be completed in 2016-17. Accordingly, the petitioner has submitted that the expenditure may be allowed under Regulation 14(3)(vii) of the 2014, Tariff Regulations.

40. The matter has been examined. In our view the expenditure claimed by the petitioner is on account of drinking water improvement. It is noticed that similar claim of the petitioner for expenditure incurred on various items relating to township and colony forming part of the generating station were disallowed by the Commission vide order dated 17.10.2012 in Petition No. 229/2009 in case of Tanda TPS. Aggrieved by the said order the petitioner had an appeal before the Tribunal and the Tribunal vide its judgment dated 1.5.2015 in Appeal No. 97 of 2013 has stated as under:

“According to Section 2(3) of the Electricity Act, the definition of generating station includes any building used for housing operating staff of a generating station. Therefore, if the Central Commission has allowed expenditure incurred towards renovation and modernization of main plant equipment and auxiliaries of the generating station, the expenditure on the renovation and modernization of the housing colony should also have been considered as it is an essential part of the power plant. Accordingly we direct the Central



Commission to reconsider allowance of expenditure to the extent incurred on renovation and modernization of the township. The matter is remanded to the Central Commission for reconsideration of this issue.”

41. Accordingly, in line with the judgment of the Tribunal, the Commission has considered drinking water improvement as a part of renovation and modernization of the housing colony and also the Commission considered this expenditure as necessary as the expenditure relates to the safety of the staff of the generating station and hence the expenditure on account of drinking water improvement is allowed.

### **Regulation 14(3)(ii) and 14(3)(iii)**

#### **Replacement of Halon Fire Protection system**

42. The petitioner has claimed additional capital expenditure of ₹155.22 lakh in 2014-15 towards Replacement of Halon Fire protection system under Regulation 14(3)(vii) of the 2014, Tariff Regulations. The petitioner has submitted that Halon fire protection system is provided for permanent fire fighting system and uses substances which are Ozone depleting in nature. The petitioner further submitted that as per the Environment (Protection) Act 1986, the Central Government laid down rules for Ozone Depleting Substances (Regulation and Control) Rules, 2000. The petitioner further submitted that as per the rules, no person or enterprise shall engage in any activity that uses ozone depleting substances unless he is registered with the authority and the generating companies are allowed to continue with the existing fire fighting system for a period of 10 years (Upto 1.1.2010) after which the production and servicing of the same was stopped (vide Schedule IV). The petitioner submitted that as per the Montreal Protocol on substances that deplete the Ozone layer, plants using Ozone depleting substances must phase out these systems and adopt systems which use substances that do not deplete the Ozone layer. Hence, the petitioner submitted that it is proposed to replace Halon gas fire protection system with alternate inert gas in line with Central Electricity Authority



(Technical Standards for construction of Electrical Plants and Electric Lines) Regulation, 2010 published in The Gazette of India no 211 dated 20.8.2010. The petitioner further submitted that the Commission may allow capitalization of Inert gas fire extinguishing system under Regulation 14(3)(ii) ( Compliance of any existing law).

43. The respondent MPPMCL submitted that Replacement of Halon Fire Protection System will not result in any efficiency in operation of the station and hence the additional capital expenditure towards the above claim under Regulation 14(3)(vii) is not admissible.

44. The petitioner in response vide its affidavit dated 26.5.2016 submitted that due to typographical error, the work of replacement of halon fire protection system has been claimed under regulation 14(3)(vii) instead of Regulation 14(3)(ii). The petitioner further submitted that the petitioner reiterates its submission as made in the Form 9A of the petition wherein it was submitted that Replacement of Halon fire protection system with inert gas system has been done in compliance with the specific direction issued by Central Government under Environment (Protection) Act 1986 and CEA (Technical Standards for construction of Electrical Plants and Electric Lines) Regulation,2010 which stipulates for phasing out of halon system. Therefore this work has been claimed under Regulation 14(3) (ii) i.e change in law and not under 14(3)(vii).

45. We have examined the matter. It is observed that similar claim of the petitioner under Regulations 14(3)(ii) and 14(3)(vii) of the 2014 Tariff Regulations for replacement of Halon fire protection system was considered by the Commission in Petition No. 286/GT/2014 (tariff of Faridabad Gas power station for 2014-19) and the Commission by order dated 31.5.2016 had rejected the claim of the petitioner. The petitioner in this petition has claimed the expenditure due to Change in law/compliance with existing law under Regulation 14(3)(ii). Alternatively, the petitioner has prayed for considering the



said expenditure under Regulation 14(3)(vii) of the 2014, Tariff Regulations. The relevant extract of the order is as under:

*“16. As stated above, the Commission in order dated 14.9.2012 while disallowing the prayer of the petitioner for capitalization of the said work/ asset in 2013-14 had observed that the generating station would be eligible for R&M after 2009-14 and that the petitioner can undertake the said work during that time. However, petitioner has not come up with any R&M proposal. In line with the said observations of the Commission, we are not inclined to allow the additional capitalization of the said work. Accordingly, the projected additional capital expenditure of ₹45.49 lakh claimed in 2014-15 is not allowed at present.*

*“17. Alternatively, the petitioner has prayed for considering the said expenditure under Regulation 14(3)(vii) of the 2014 Tariff Regulations, quoted above. The matter has been examined. In our considered view, the expenditure claimed for Inert Gas fire extinguishing system do not in any way contribute to the efficient operation of the generating station. Therefore there is no reason to permit the additional capitalization of the expenditure. Accordingly, the claim of the petitioner for projected additional capital expenditure of ₹45.49 lakh in 2014-15 is not allowed.”*

46. Though the prayer of the petitioner was not allowed under Regulation 14(3)(ii) of the 2014 Tariff Regulations, the Commission is of the view that the matter needs to be examined in the larger perspective i.e whether the CEA Regulations 2010 and 2011 are applicable to the existing generating stations and if so, whether the implementation of the augmentation of fire fighting system should be considered as Change in law and is required for Safety and security of the plant in terms of Regulation 14(3)(ii) and (iii) of the 2014 Tariff Regulations. Accordingly, the Commission has decided to consult the CEA in this regard. Therefore, the Staff of the Commission is directed to refer the matter to CEA for necessary clarification. Pending clarification in the matter, the claim of the petitioner has not been decided in this order. If on the basis of the report of the CEA, the Commission comes to a decision to allow the expenditure for Inert gas fire extinguishing system under Change in law and for Safety and security of the plant, and in that event, the claim of the petitioner shall be considered at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations.

### **Construction of Utility Culverts for crossing utilities**



47. The petitioner has claimed additional capital expenditure of ₹150.00 lakh in 2014-15 towards Construction of utility culverts for crossing utilities under Regulation 14(3)(ii) of the 2014, Tariff Regulation. The petitioner has submitted that the National Highway Authority of India (NHAI) has started construction work of widening and converting the National Highway no. 6 which is running between plant and township in 4 lanes/6 lanes. It has further submitted that the above widening work necessitated the requirement of utility RCC culverts for existing HT power cables, communication lines, drinking water pipelines, storm water pipelines, raw water pipelines and sewage water pipelines between plant and Township. The petitioner has submitted that NHAI vide letter dated 20.7.2012 has requested the industries located around the National Highway to relocate the utility lines and provide the land which is required for construction of highway. The petitioner has stated that it approached NHAI for construction of utility culverts on deposit basis of its utility lines. The petitioner has further submitted that the expenditure is made in line with the directions of NHAI for shifting of utility lines and therefore is statutory in nature. It has further stated that the work is in progress and is expected to be completed in 2014-15 and has accordingly prayed that the Commission may allow the same.

48. The respondent MPPMCL has submitted that the expenditure is not covered under Regulation 14(3)(vii) and hence may not be admitted.

49. We have examined the matter. The petitioner has submitted that the NHAI vide its letter dated 20.7.2012 has directed the industries located around the National Highway to relocate the utility lines and provide the land which is required for construction of highway. However, the petitioner has not submitted any details of the nature of land that is transferred to the NHAI for the construction of Highway. In the absence of proper details we are not inclined to allow this expenditure claimed. However, the petitioner is granted liberty to claim the expenditure under this head at the



time of truing-up in terms of Regulation 8 of the 2014 Tariff Regulations with proper details.

### **Foot Over Bridge**

50. The petitioner has claimed additional capital expenditure of ₹350.00 lakh in 2016-17 towards Foot over bridge under Regulation 14(3)(ii) and 14(3)(iii) of 2014 Tariff Regulations. The petitioner has submitted that National Highway Authority of India (NHAI) has started construction work of widening and converting the National Highway No. 6 which is running between plant and township in 4 lanes/6 lanes. It has further submitted that the said National Highway has heavy vehicular ODC movement traffic of 'A' class, and the above widening of National Highway will increase the distance for approaching the service road between plant and township from 80 meters to about 2km. It has further submitted that in order to ensure safety of the employees, for conveyance daily between the Plant and Township, a foot over bridge is proposed to be constructed by NHAI on deposit work basis. The petitioner has accordingly, submitted that the expenditure is towards safety of employees, and hence the same may please be allowed.

51. The respondent MPPMCL has submitted that the additional capital expenditure claimed for construction of Foot over bridge is not covered under Regulation 14(3)(vii) and hence may not be admitted.

52. In response, the petitioner has submitted that the expenditure incurred is in line with the directions issued by National High Authority of India (NHAI) and accordingly the same have been claimed under Regulation 14(3)(ii) i.e change in law.

53. We have examined the matter. In our view the expenditure proposed to be incurred is minor in nature and the petitioner may meet such expenditure from the O&M



expenses allowed to the generating station. Hence the claim of the petitioner is not allowed.

54. Based on above discussions, the projected additional capital expenditure allowed for the generating station for the period 2014-19 is as under:

|  |                          |                 |             |             |             |             | (₹ in lakh) |
|--|--------------------------|-----------------|-------------|-------------|-------------|-------------|-------------|
| Head of Work/Equipment   | Regulation               | 2014-15         | 2015-16     | 2016-17     | 2017-18     | 2018-19     |             |
| 1. R&M Package for Life Extension  |                          |                 |             |             |             |             |             |
| 1.1 Life extension of gas turbine and up gradation of control systems of GTs, WHRBSs and STs | 14(3)(vii)               | 18199.44        | 0.00        | 0.00        | 0.00        | 0.00        |             |
| Deduction on account of capital spares   |                          | 1466.50         |             |             |             |             |             |
| <b>A. Total (R&amp;M)</b>  |                          | <b>16732.94</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |             |
| 2.1 Replacement of Halon Fire Protection system  | 14(3)(vii)               | 0.00            | 0.00        | 0.00        | 0.00        | 0.00        |             |
| 2.2 Construction of 16 nos B-Type and 29 nos D type Quarters                                 | 14(3)(vii)               | 264.57          | 0.00        | 0.00        | 0.00        | 0.00        |             |
| 2.3 On line water washing system for Gas Turbine   | 14(3)(vii)               | 351.43          | 0.00        | 0.00        | 0.00        | 0.00        |             |
| 2.4 R O Plant for DM water   | 14(3)(vii)               | 349.00          | 0.00        | 0.00        | 0.00        | 0.00        |             |
| 2.5 Drinking water improvement   | 14(3)(vii)               | 54.96           | 0.00        | 0.00        | 0.00        | 0.00        |             |
| 2.6 Construction of Utility Culverts for crossing utilities                                  | 14(3)(ii)                | 0.00            | 0.00        | 0.00        | 0.00        | 0.00        |             |
| 2.7 Foot-over Bridge   | 14(3)(ii) and 14(3)(iii) | 0.00            | 0.00        | 0.00        | 0.00        | 0.00        |             |
| <b>B. Total additional capital expenditure claimed</b>                                       |                          | <b>17752.90</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |             |
| 3. De-capitalisation on account of above capitalisation mentioned in                         |                          | (-)-5686.71     | 0.00        | 0.00        | 0.00        | 0.00        |             |



| Head of Work/Equipment | Regulation | 2014-15         | 2015-16     | 2016-17     | 2017-18     | 2018-19     |
|------------------------|------------|-----------------|-------------|-------------|-------------|-------------|
| R&M-1.                 |            |                 |             |             |             |             |
| <b>C. Total</b>        |            | <b>12066.19</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |

55. Accordingly, the capital cost allowed for 2014-19 is as under:

|                                | (₹ in lakh) |           |           |           |           |
|--------------------------------|-------------|-----------|-----------|-----------|-----------|
|                                | 2014-15     | 2015-16   | 2016-17   | 2017-18   | 2018-19   |
| Opening Capital cost           | 174874.41   | 186940.60 | 186940.60 | 186940.60 | 186940.60 |
| Additional capital expenditure | 12066.19    | 0.00      | 0.00      | 0.00      | 0.00      |
| Closing capital cost           | 186940.60   | 186940.60 | 186940.60 | 186940.60 | 186940.60 |
| Average Capital cost           | 180907.51   | 186940.60 | 186940.60 | 186940.60 | 186940.60 |

### **Debt: Equity Ratio**

56. Regulation 19 of the 2014 Tariff Regulations provides as under:

*(1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:*

*Provided that:*

*(i) where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:*

*(ii) the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:*

*(iii) any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt-equity ratio.*

*Explanation - The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station or the transmission system.*

*(2) The generating Company or the transmission licensee shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs (CCEA) regarding infusion of fund from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.*



*(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, debt:equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.*

*(4) In case of generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt:equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt:equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.*

*(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.*

57. The petitioner has submitted that the petitioner has filed details in Form 4 (Details of Foreign Loans) considering the exchange rate as on 3.10.2012 and 31.5.2013 as the Base Exchange rate. The petitioner has further submitted that extra rupee liability towards interest payment and loan repayment corresponding to the normative foreign currency in the relevant years shall be recoverable / payable with respect to exchange rate. The respondent MPPMCL has submitted that the extra rupee liability due to exchange rate variation, levies, duties, taxes etc. shall be allowed to the petitioner only after prudent check and based on supporting documents.

58. The Commission has examined the matter. In our view, the recovery of the rupee liability towards interest payment and loan repayment corresponding to the normative foreign currency in the relevant years shall be recover by billing directly to the beneficiaries by the petitioner in terms of 2014 Tariff Regulations.

59. Accordingly, gross loan and equity of ₹91585.61 lakh and ₹83288.80 lakh respectively as on 31.3.2014 as allowed in order dated 15.3.2017 in Petition No. 346/GT/2014 has been considered as on 1.4.2014. Further, the admitted



actual/projected additional capital expenditure has been allocated between debt and equity in the ratio of 70:30.

(₹ in lakh)

|              | As on 1.4.2014    |               | Net Additional capitalization during 2014-19 |               | As on 31.3.2019   |               |
|--------------|-------------------|---------------|--|---------------|-------------------|---------------|
|              | Amount            | (%)           | Amount                                       | (%)           | Amount            | (%)           |
| Debt         | 91,585.61         | 52.37         | 8446.34                                      | 70.00         | 100,031.95        | 53.51         |
| Equity       | 83,288.80         | 47.63         | 3619.86                                      | 30.00         | 86,908.66         | 46.49         |
| <b>Total</b> | <b>174,874.41</b> | <b>100.00</b> | <b>12066.19</b>                              | <b>100.00</b> | <b>186,940.60</b> | <b>100.00</b> |

### Return on Equity

60. Regulation 24 of the 2014 Tariff Regulations provides as under:

**“24. Return on Equity:** (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:

Provided that:

i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:

ii). the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:

iii). additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:

iv). the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:



v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometers.

61. Regulation 25 of the 2014 Tariff Regulations provides as under:

**“Tax on Return on Equity**

(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non-generation or non-transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”.

(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), “t” shall be considered as MAT rate including surcharge and cess.

62. The petitioner has claimed return on equity considering the base rate of 15.5% and effective tax rate of 23.939%. In response to the directions of the Commission in Petition No. 290/GT/2014 (tariff of Singrauli STPS for 2014-19), the petitioner vide affidavit dated 23.9.2015 has worked out the effective tax rate as 22.584% based on the actual profit and tax paid for the year 2014-15. During the hearing of the tariff petitions filed by the petitioner for 2014-19, the respondent beneficiaries had raised the issue regarding the computation of effective tax rate. Accordingly, in terms of the direction of the Commission, the petitioner vide affidavit dated 8.1.2016 in Petition No. 280/GT/2014



(pertaining to tariff of Farakka STPS, Stage-III) has filed the Auditor's Certificate regarding the deposit of advance tax on generation business for the year 2014-15 and Income Tax return for the year 2014-15 (AY 2015-16). We have perused these documents. Though the 2014 Tariff Regulations specify the computation of effective tax rate on the basis of tax paid, we deem it proper to allow the grossing up on MAT rate considering the fact that the matter is being decided and disposed of during 2016-17. Accordingly, for the present, the effective tax rate (MAT) of 20.961% has been considered for the year 2014-15 and 21.342% for the year 2015-16 onwards up to 2018-19 for the purpose of grossing up of the base rate of 15.5%. Based on the above, the rate of ROE works out to 19.610% for FY 2014-15 and 19.705% for FY 2015-16 onwards. This is subject to truing-up in terms of the 2014 Tariff Regulations. Accordingly, return on equity has been worked out as under:-

|   | (₹ in lakh)     |                 |                 |                 |                 |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|
|   | 2014-15         | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
| Notional Equity- Opening  | 83288.80        | 86908.66        | 86908.66        | 86908.66        | 86908.66        |
| Addition of Equity due to additional capital expenditure              | 3619.86         | 0.00            | 0.00            | 0.00            | 0.00            |
| Repayment of Equity (balance of depreciation after repayment of loan) | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            |
| Closing Equity  | 86908.66        | 86908.66        | 86908.66        | 86908.66        | 86908.66        |
| Average Equity  | 85098.73        | 86908.66        | 86908.66        | 86908.66        | 86908.66        |
| Return on Equity (Base Rate ) (%)                                     | 15.500          | 15.500          | 15.500          | 15.500          | 15.500          |
| Tax rate (%)  | 20.961          | 21.342          | 21.342          | 21.342          | 21.342          |
| Rate of Return on Equity (Pre Tax) (%)                                | 19.610          | 19.705          | 19.705          | 19.705          | 19.705          |
| <b>Return on Equity (Pre Tax)</b>                                     | <b>16687.86</b> | <b>17125.35</b> | <b>17125.35</b> | <b>17125.35</b> | <b>17125.35</b> |

### Interest on Loan

63. Regulation 26 of the 2014 Tariff Regulations provides as under:-

**“26. Interest on loan capital:** (1) *The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.*



(2) *The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.*

(3) *The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalization of such asset.*

(4) *Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.*

(5) *The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:*

*Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:*

*Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.*

(6) *The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.*

(7) *The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.*

(8) *The changes to the terms and conditions of the loans shall be reflected from the date of such refinancing.*

(9) *In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute:*

*Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.”*



64. Interest on loan has been worked out as under:-

- a. As stated above gross normative loan amounting to ₹91585.61 lakh has been considered as on 1.4.2014.
- b. Cumulative repayment amounting to ₹65612.05 lakh as on 31.3.2014 as considered in order dated 15.3.2017 in Petition No. 346/GT/2014.
- c. Addition to normative loan on account of additional capital expenditure approved above has been considered on year to year basis.
- d. Depreciation allowed has been considered as repayment of normative loan during the respective year of the tariff period 2014-19. Further proportionate adjustment has been made to the repayments corresponding to discharges of liabilities considered during the respective years on account of cumulative repayment adjusted as on 31.3.2014.
- e. In line with the provisions of the above regulation, the weighted average rate of interest of has been calculated by applying actual loan portfolio existing as on 1.4.2014 along with subsequent additions during the period 2014-19, if any, for the generating station. In case of loans carrying floating rate of interest the rate of interest as provided by the petitioner has been considered for the purpose of tariff. The calculations for weighted average rate of interest on loan are enclosed in **Annexure-I** of this order.

65. The necessary calculation for interest on loan is as under:-

|                    | (₹ in lakh) |           |           |           |           |
|--------------------|-------------|-----------|-----------|-----------|-----------|
|                    | 2014-15     | 2015-16   | 2016-17   | 2017-18   | 2018-19   |
| Gross opening loan | 91585.61    | 100031.95 | 100031.95 | 100031.95 | 100031.95 |



|   | 2014-15         | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| Cumulative repayment of loan up to previous year  | 65612.05        | 64942.24        | 68728.60        | 72513.10        | 76297.59        |
| Net opening loan  | 25973.56        | 35089.70        | 31303.34        | 27518.85        | 23734.36        |
| Addition due to Additional Capitalisation   | 8446.34         | 0.00            | 0.00            | 0.00            | 0.00            |
| Repayment of Loan during the period   | 3310.89         | 3786.36         | 3784.49         | 3784.49         | 3784.49         |
| Less: Repayment adjustment on a/c of de-capitalization  | 3980.69         | 0.00            | 0.00            | 0.00            | 0.00            |
| Add: Repayment adjustment on a/c of discharges / reversals corresponding to un-discharged liabilities deducted as on 01.04.2009 | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            |
| Net Closing Loan  | 35089.70        | 31303.34        | 27518.85        | 23734.36        | 19949.87        |
| Average Loan  | 30531.63        | 33196.52        | 29411.10        | 25626.60        | 21842.11        |
| Weighted Average Rate of Interest on Loan (%)   | 6.9752          | 6.8745          | 6.6534          | 6.4013          | 6.1115          |
| <b>Interest on Loan</b>   | <b>2,129.64</b> | <b>2,282.09</b> | <b>1,956.84</b> | <b>1,640.44</b> | <b>1,334.88</b> |

### Depreciation

66. Regulation 27 of the 2014 Tariff Regulations provides as under:

**“27. Depreciation:** (1) *Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.*

*Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.*

(2) *The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial*



*operation of the asset for part of the year, depreciation shall be charged on pro rata basis.*

*(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset:*

*Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:*

*Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long term power purchase agreement at regulated tariff:*

*Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.*

*(4) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.*

*(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-II** to these regulations for the assets of the generating station and transmission system:*

*Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.*

*(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets.*

*(7) The generating company or the transmission license, as the case may be, shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.*

*(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalized asset during its useful services.”*



### **Balance useful life of the generating station**

67. The Commission in Paragraph 65 of the order dated 15.3.2017 in Petition No. 346/GT/2014 had decided as under:-

*“Accordingly balance life of the generating station as on 1.4.2014 is 8.61 years. The balance useful life of the generating station will be reset again after the completion of the R&M of GT 2A during 2014-19 tariff period. However, for the purpose of depreciation for 2009-14 tariff period, the balance useful life of the generating station at the beginning of each year would remain same as given by the Commission in its order dated 1.8.2013 in Petition No. 25/GT/2013 till 2009-14 as shown under:*

| 2009-10    | 2010-11    | 2011-12    | 2012-13    | 2013-14    |
|------------|------------|------------|------------|------------|
| 8.77 years | 7.77 years | 6.77 years | 5.77 years | 4.77 years |

68. The petitioner has claimed the life extension of the generating station as shown below:

| Description | Capacity MW | COD         | Elapsed Life as on 01.04.2009 | Elapsed Life as on 01.04.2014 | Useful Life after extension of life by 10 years for GT's as on 01.04.2013 | Balance Life as on 01.04.2013 |
|-------------|-------------|-------------|-------------------------------|-------------------------------|---|-------------------------------|
| GT-I A      | 106         | 01-06-1992  | 16.84                         | 21.84                         | 31.34   |                               |
| GT-I B      | 106         | 01-08-1992  | 16.68                         | 21.68                         | 31.18   |                               |
| GT-2A       | 106         | 01-09-1992  | 16.59                         | 21.59                         | 32.09   |                               |
| GT-2B       | 106         | 01-11-1992  | 16.42                         | 21.42                         | 30.92   |                               |
| ST-1C       | 116.1       | 01-11-1993  | 15.42                         | 20.42                         | 25.00   |                               |
| ST-2C       | 116.1       | 01-09-1993  | 15.59                         | 20.59                         | 25.00   |                               |
| Total       | 656.20      | WT Avg life | 16.24                         | 21.24                         | 29.12   | 7.89                          |

69. The actual additional capital expenditure claimed for R&M of GTs and R&M of C&I of STs has been considered for the remaining GTs and STs. The petitioner has submitted the date of completion of R&M of GT 2A and ST 2C are as given below:

| Unit  | Date of Turbine put to use |
|-------|----------------------------|
| GT 2A | 14.9.2014                  |
| ST 2C | 28.8.2014                  |



70. It is evident from the above table that the major part of R&M (R&M of 3 GTs) including R&M of C&I has been completed during 2013-14. Accordingly, the life of GT 1A, GT 1B and GT 2B has been extended by 10 years from 1.4.2014. In view of this, weighted average balance life of the generating station as on 1.4.2014 has been computed as under:

| Description | Capacity MW | COD                   | Elapsed Life as on 01.04.2009 | Elapsed life as on 31.3.2014 | Balance life as on 1.4.2014 | Life after extension of 10 years of GT1A, GT1B and GT2B as on 1.4.2014 |
|-------------|-------------|-----------------------|-------------------------------|------------------------------|-----------------------------|--|
| GT-I A      | 106.00      | 1.6.1992              | 16.84                         | 21.84                        | 3.16                        | 13.16  |
| GT-I B      | 106.00      | 1.8.1992              | 16.68                         | 21.68                        | 3.32                        | 13.32  |
| GT-2 A      | 106.00      | 1.9.1992              | 16.59                         | 21.59                        | 3.41                        | 3.41   |
| GT-2B       | 106.00      | 1.11.1992             | 16.42                         | 21.42                        | 3.58                        | 13.58  |
| ST-I C      | 116.10      | 1.11.1993             | 15.42                         | 20.42                        | 4.58                        | 4.58   |
| ST-2 C      | 116.10      | 1.9.1993              | 15.59                         | 20.59                        | 4.41                        | 4.41   |
| Total       | 656.20      | Weighted Average life | 16.24                         | 21.24                        | 3.76                        | <b>8.61</b>  |

71. The Commission vide order dated 16.3.2017 has determined the weighted average balance life of the generating station as 8.61 years which is subject to change / revision once the R&M of the generating station is complete. The petitioner has submitted that the R&M of the remaining GT 2A and R&M of C&I of remaining ST 2C has been completed in 2014-15 period. Accordingly, the life of the GT 2A has been extended by 10 years from 1.4.2014. In view of this weighted average balance life of the generating station as on 1.4.2015 is computed as under:

| Description | Capacity MW | COD        | Balance life as on 1.4.2014 | Life after extension of 10 years of GT1A, GT1B and GT2B | Balance life as on 1.4.2015 | Life after extension of 10 years of GT 2A |
|-------------|-------------|------------|-----------------------------|---|-----------------------------|---|
| GT-I A      | 106         | 01-06-1992 | 3.16                        | 13.16   | 12.16                       | 12.16                                     |
| GT-I B      | 106         | 01-08-1992 | 3.32                        | 13.32   | 12.32                       | 12.32                                     |
| GT-2 A      | 106         | 01-09-1992 | 3.41                        | 3.41  | 2.41                        | 12.41                                     |
| GT-2B       | 106         | 01-11-1992 | 3.58                        | 13.58   | 12.58                       | 12.58                                     |
| ST-I C      | 116.1       | 01-11-1993 | 4.58                        | 4.58  | 3.58                        | 3.58                                      |
| ST-2 C      | 116.1       | 01-09-1993 | 4.41                        | 4.41  | 3.41                        | 3.41                                      |



| Description  | Capacity MW   | COD                    | Balance life as on 1.4.2014 | Life after extension of 10 years of GT1A, GT1B and GT2B | Balance life as on 1.4.2015 | Life after extension of 10 years of GT 2A |
|--------------|---------------|------------------------|-----------------------------|---|-----------------------------|---|
| <b>Total</b> | <b>656.20</b> | <b>WT Average life</b> | <b>3.76</b>                 | <b>8.61</b>   | <b>7.61</b>                 | <b>9.23</b>                               |

72. The balance life of the generating station is 8.61 years as on 1.4.2014, 9.23 years as on 1.4.2015. Accordingly balance life of the generating station at the beginning of each year of the period 2009-14 has been worked out as per Commission's order dated 15.3.2017 in Petition No. 346/GT/2014 till 2009-14 and the useful life with effect from 1.4.2014 is as shown under:

| 2014-15    | 2015-16    | 2016-17    | 2017-18    | 2018-19    |
|------------|------------|------------|------------|------------|
| 8.61 years | 9.23 years | 8.23 years | 7.23 years | 6.23 years |

### Un-recovered Depreciation

73. The petitioner was directed to furnish the statement showing the year-wise details of the depreciation un-recovered, if any, till 30.3.2014 on account of availability lower than NAPAF, in respect of all thermal generating stations. In response, the petitioner has referred to the order of the Commission dated 24.10.2002 and 4.7.2013 in Petition No. Petition No. 78/2001 and submitted that the said issue has been settled. The relevant portion of the order is given as under:

*"17. We accordingly direct that Petition No.78/2001 be set down for hearing on 5.6.2003 for reconsideration of liability of the petitioner to pay disincentive for the period from 1.8.1996 to 31.3.1998. In view of this direction, the Commission's earlier direction in order dated 24.10.2002, in so far as it relates to liability of the petitioner to pay disincentive to the beneficiaries for this period, that is, 1.8.1996 to 31.3.1998 shall not be given effect to, till further order on the main Petition No.78/2001."*

74. The petitioner also submitted that in terms of the Tribunal's judgment dated 13.6.2007 on the issue of "Admissibility of depreciation upto 90% of the value of the assets", was considered and the Tribunal has observed as under:

*"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.”*

75. Accordingly, the details in respect of this generating station as furnished by the petitioner is as under:

| (₹ in lakh) |                     |                     |  |             |                      |               |                                      |
|-------------|---------------------|---------------------|--|-------------|----------------------|---------------|--------------------------------------|
| Year        | Target Availability | Annual Availability | % of Fixed charge/ depreciation recovered* | AFC         | Dep. Included in AFC | Dis-incentive | Dep. Unrecovered due to disincentive |
|             | (%)                 | (%)                 | (%)  | (₹ in lakh) | (₹ in lakh)          | (₹ in lakh)   | (₹ in lakh)                          |
| 1993-94     | 62.79               | 60.94               | 98   | 14650       | 5613                 | 293           | 112                                  |

\* As per the Govt of India notification dated 30.4.1994 and order dated 4.7.2013 in petition no. 78/2001.

We have examined the matter. Since R&M of the generating station has been undertaken by the petitioner, and the generating station has extended its useful life by 10 years, the unrecovered depreciation shall be reconsidered by the generating station in terms of the judgment of the Tribunal once the plant has lived its designated useful life.

76. The cumulative depreciation as on 31.3.2014 vide order dated 15.3.2017 in Petition No. 346/GT/2014 works out to ₹139986.27 lakh. The depreciation has been calculated applying spreading over of the balance depreciable value. The balance useful life as on 1.4.2014, as per order dated 15.3.2017 works out to 8.61 years and the balance life as on 1.4.2015 works out to be 9.23 years, and same has been considered for calculation of depreciation. The necessary calculations in support of depreciation are as under:

| (₹ in lakh) |         |         |         |         |         |
|-------------|---------|---------|---------|---------|---------|
|             | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|             |         |         |         |         |         |



|   | 2014-15   | 2015-16   | 2016-17   | 2017-18   | 2018-19   |
|---|-----------|-----------|-----------|-----------|-----------|
| Average capital cost  | 180907.51 | 186940.60 | 186940.60 | 186940.60 | 186940.60 |
| Cost of Land  | 734.63    | 734.63    | 734.63    | 734.63    | 734.63    |
| Depreciable value @ 90%   | 162155.59 | 167585.38 | 167585.38 | 167585.38 | 167585.38 |
| Balance depreciable value   | 28508.65  | 34932.73  | 31146.37  | 27361.87  | 23577.38  |
| <b>Depreciation (Annualized)</b>  | 3310.89   | 3786.36   | 3784.49   | 3784.49   | 3784.49   |
| Balanced life of the station  | 8.61      | 9.23      | 8.23      | 7.23      | 6.23      |
| Cumulative depreciation at the end of the period (before adjustment)  | 136957.83 | 136439.01 | 140223.50 | 144007.99 | 147792.49 |
| Add: Cumulative depreciation adjustment on account of discharges out of un-discharged liabilities deducted as on 1.4.2009 | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      |
| Less: Cumulative depreciation adjustment on account of de-capitalization  | 4305.18   | 0.00      | 0.00      | 0.00      | 0.00      |
| Cumulative depreciation after adjustment (at the end of the period)   | 132652.65 | 136439.01 | 140223.50 | 144007.99 | 147792.49 |

### **Operation & Maintenance Expenses**

77. Regulation 29 (1)(c) of the 2014 Tariff Regulations provides the year-wise O&M expense norms for the generating station as under:

| (₹ in lakh/MW) |         |         |         |         |
|----------------|---------|---------|---------|---------|
| 2014-15        | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 14.67          | 15.59   | 16.57   | 17.61   | 18.72   |

78. Based on the norms, the O&M expenses claimed by the petitioner for the period 2014-19 is worked out and allowed as under:

| (₹ in lakh/MW) |          |          |          |          |
|----------------|----------|----------|----------|----------|
| 2014-15        | 2015-16  | 2016-17  | 2017-18  | 2018-19  |
| 9626.45        | 10230.16 | 10873.23 | 11555.68 | 12284.06 |

### **Water Charges**

79. 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:*

*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 modernization”*

80. The petitioner has submitted that as per Regulation 29(2) of the 2014 Tariff Regulations, the water charges and capital spares consumed for thermal generating stations are to be allowed separately. The petitioner has furnished the details in respect of water charges such as type of cooling water system, water consumption, rate and total of water charges as applicable for 2013-14 and has submitted that the water charges may be allowed in tariff based on actual of 2013-14. It has further stated that in accordance with provisions of the Regulations, the petitioner shall furnish the details of actuals for the relevant year at the time of truing up and the same shall be subject to retrospective adjustment. The petitioner has added that it would be relevant to mention that the expenditure of these nature are necessarily to be incurred by the generating station on a continuous basis and accordingly, these need to be provided in the Annual Fixed Charges as well as working capital so as to enable the generator to recover such expenses and pay for them on continuous basis.

81. 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 of the details furnished by the petitioner. The details regarding the same furnished by the petitioner is as under:-

| <b>Description</b>               | <b>Remarks</b>                |
|----------------------------------|-------------------------------|
| Type of Plant                    | Gas                           |
| Type of cooling water system     | Closed circuit cooling system |
| Consumption/ Allocation of water | 3.34 MCM/6MCM                 |



|                       |              |
|-----------------------|--------------|
| Rate of water charges | 16.10 ₹/m3   |
| Total water charges   | ₹582.66 lakh |

82. The respondent MPPMCL has submitted that the water charges are admissible for the period 2014-19 not for the year 2013-14. The respondent has further submitted that the petitioner is required to submit details of actual water charges paid for claiming the expenditure and since no details have been submitted by the petitioner, the respondent has prayed that the expenditure under this head may not be allowed.

83. In order to examine the trend of the actual water consumption and rate of water charges, the petitioner was directed vide ROP of the hearing dated 19.4.2016, to submit the details of actual water consumption and water charges during the period 2009-14. Accordingly, the details of water consumption and the water charges for last 5 years furnished by the petitioner vide affidavit dated 6.6.2016 is as under:-

| (₹ in lakh) |                           |  |   |  |   |   |                                |
|-------------|---------------------------|--|---|--|---|---|--------------------------------|
|             | Allocated Qty (cu. Meter) | Actual water consumption Operation (cu. Meter) | Actual water consumption Township (cu. Meter) | Total actual water Consumption (cu. Meter) | Rate of water for Industrial use (Rs/cu. Meter) | Rate of water for drinking (Rs/cu. meter) | Total water charges paid in Rs |
| 2009-10     | 6200000.00                | 6422254.86                                     | 76650.00                                      | 6498904.86                                 | 11.00   | 1.33                                      | 70746748.00                    |
| 2010-11     | 6500000.00                | 6132088.00                                     | 76650.00                                      | 6208738.00                                 | 12.10   | 1.46                                      | 74310178.00                    |
| 2011-12     | 7000000.00                | 5846855.00                                     | 76860.00                                      | 5923715.00                                 | 13.31   | 1.61                                      | 77945384.00                    |
| 2012-13     | 6000000.00                | 4583525.00                                     | 76650.00                                      | 4660175.00                                 | 14.64   | 1.77                                      | 67238473.70                    |
| 2013-14     | 6000000.00                | 3337676.00                                     | 76650.00                                      | 3414326.00                                 | 16.10   | 1.95                                      | 58287554.00                    |
| 2014-15     | 2000000.00                | 1849404.00                                     | 76650.00                                      | 1926054.00                                 | 17.72   | 2.15                                      | 32936243.00                    |
| 2015-16     | 2800000.00                | 1975720.00                                     | 76860.00                                      | 2052580.00                                 | 19.49   | 2.37                                      | 38919878.00                    |

84. The water charges claimed by the petitioner for 2014-19 are as follows:



| (₹ in lakh) |         |         |         |         |
|-------------|---------|---------|---------|---------|
| 2014-15     | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 582.66      | 619.66  | 659.01  | 700.85  | 745.36  |

85. The petitioner has claimed water charges for 2014-15 based on the water consumption and rate of water charges for the year 2013-14. The water charges for the years 2015-16 to 2018-19 has been claimed by escalating @ 6.35% the water charges of ₹582.66 lakh in 2014-15 every year.

86. It is observed from the above table that the water consumption and water charges during 2013-14 have decreased substantially as compared to the water charges during the period 2009-12. The petitioner has further submitted the yearly details of contracted quantity/ allocated quantity of water, actual consumption of water along with the water charges paid to the Govt. of Gujarat in accordance notification issued by Govt. of Gujarat for the period 2009-14.

87. The Commission examined the matter and is of the view that the water charges and water consumption has decreased substantially. Accordingly, water charges of ₹329.36 lakh paid during the year 2014-15 has been considered for allowing the water charges on projection basis during the period 2014-19 for the purpose of tariff as under:

| (₹ in lakh) |         |         |         |         |
|-------------|---------|---------|---------|---------|
| 2014-15     | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 329.36      | 329.36  | 329.36  | 329.36  | 329.36  |

88. The petitioner is directed to furnish the details such as the contracted quantity, allocation of water, the actual water consumed during 2014-19, the basis of calculation of quantity of CW and computation of water charges at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations. In addition, the petitioner shall also confirm / clarify as to whether the water charges have been paid on the basis of contracted quantity or on the basis of allocation, and what are the watch and ward



charges and penalty charges for consuming less water from the allocated quantity claimed as a part of water charges.

89. Accordingly, the total O&M expenses including water charges as claimed by the petitioner and allowed for the purpose of tariff is as under:

|                                       | (₹ in lakh)    |                 |                 |                 |                 |
|---------------------------------------|----------------|-----------------|-----------------|-----------------|-----------------|
|                                       | 2014-15        | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
| O&M expenses claimed                  | 9626.45        | 10230.16        | 10873.23        | 11555.68        | 12284.06        |
| <b>O&amp;M expenses allowed</b>       | <b>9626.45</b> | <b>10230.16</b> | <b>10873.23</b> | <b>11555.68</b> | <b>12284.06</b> |
| Water charges claimed                 | 582.66         | 619.66          | 659.01          | 700.85          | 745.36          |
| <b>Water charges allowed</b>          | <b>329.36</b>  | <b>329.36</b>   | <b>329.36</b>   | <b>329.36</b>   | <b>329.36</b>   |
| Total O&M expenses claimed            | 10209.11       | 10849.82        | 11532.24        | 12256.54        | 13029.42        |
| <b>Total O&amp;M expenses allowed</b> | <b>9955.81</b> | <b>10559.52</b> | <b>11202.59</b> | <b>11885.04</b> | <b>12613.42</b> |

### **Enhancement of O&M expenses**

90. The petitioner has submitted that the salary / wage revision of the employees of the petitioner will be due with effect from 1.1.2017. It has also submitted that the O&M expenses claimed is based on 2014, Tariff Regulations and the escalation of 6.35% provided in the O&M would not cover the enhanced employee cost w.e.f 1.1.2017. The petitioner, has therefore prayed for grant of liberty by the Commission to seek enhancement in the O&M expenses towards increased salary on account of salary revision due from 1.1.2017, based on the actual payments whenever paid by it. The matter has been examined.

91. The matter has been examined. On this issue, the Commission in the Statement of Reasons to the 2014 Tariff Regulations has observed as 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 macro economics 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".*

92. The respondent MPPMCL has submitted that, the Commission while fixing the O&M expenses norms and its escalation has already given due consideration to the future increase in salary and wages of the employees and therefore the prayer of the petitioner to seek enhancement in O&M expenses with effect from 1.1.2017 is not to be considered.

93. In response, the petitioner has submitted that based on the actual O&M expenses of various generating station for the period 2008-09 to 2012-13, the normative O&M expenses applicable for the tariff period 2014-19 have been notified by the Commission. The petitioner has further submitted that while fixing the normative O&M expenses, the Commission has taken normative percentage of employees cost into the total O&M expenses for different generating stations without taking into account the impact of pay revision in the employees cost. The petitioner has further submitted that the normative employees cost as fixed by the Commission with certain percentage of escalation does not include the effect of salary and wage revision in future.

94. The petitioner further submitted that the salary revision for NTPC employees is due with effect from 1.1.2017. Therefore, the O&M data submitted by the Petitioner to the Commission for fixation of O&M norms does not include any increase in employees cost, which is going to be incurred in future on account of pay revision. The petitioner further submitted that in view of the above, it is prayed to the Commission to consider the effect of pay revision while determining the tariff of the instant station. As the contentions raised by the Respondent is not in consonance with views of the Commission therefore liable to be rejected.



95. Accordingly, the prayer of the petitioner for enhancement of O&M expenses if any, due to pay revision may be examined by the Commission, on a case to case basis, subject to the implementation of pay revision as per DPE guidelines and the filing of an appropriate application by the petitioner in this regard.

### **Capital spares**

96. The petitioner has not claimed capital spares on projection basis during the period 2014-19. Accordingly, the same has not been considered in this order. The claim of the petitioner, if any, at the time of truing-up, shall be considered on merits, after prudence check.

### **Operational Norms**

97. The operational norms in respect of the generating station claimed by the petitioner are as under:

|  |         |
|--|---------|
| Normative annual Plant Availability Factor (NAPAF) | 85.0    |
| Gross Station Heat Rate (kcal/kwh)                 | 2050.00 |
| Auxiliary Power Consumption %                      | 2.5     |

98. The above operational norms claimed by the petitioner are in terms of the provisions of Regulation 36 of the 2014 Tariff Regulations and is in order. The petitioner has submitted that the Commission in the "Statement of Reasons" for the 2014 Tariff Regulations has specified lower/ tighter Norms for gas stations considering CEA's recommendations and operating data for 2008-13 period, though the petitioner had requested for consideration of the operating data for the year 2012-13 and 2013-14 when the plant was operating at lower PLF. The petitioner has further submitted that due to lower availability of domestic gas and increase in prices, the generation from gas stations are likely to be even less and the same is likely to result in lower generation



from gas stations in the years to come. The petitioner has therefore submitted that in the event the gas stations continue to operate at lower PLF, the Commission may grant liberty to approach the Commission for seeking relaxation of operating norms as per the actual performance during the period 1.4.2014 onwards.

99. The respondent MPPMCL has submitted that the Commission has already considered the norms based on CEA recommendations and hence the petitioner is not entitled to claim any relaxation in the norms under Regulations 54 and 55 of the 2014, Tariff Regulations.

100. In response, the petitioner has submitted that due to very low scheduling of power by the beneficiaries, the generating station has been forced to operate either on partial load or to remain under reserve shut down. The petitioner has further submitted that as per CEA's recommendations, the prevailing operating conditions are making it difficult to achieve the normative operating parameters as set out in the 2014 Tariff Regulations, which are based on the operating parameter of 2008-13. The petitioner has also submitted that in view of the operating difficulty faced by the petitioner, it has approached the Commission for relaxation of norms as well as removal of difficulty as per the Regulation 54 & Regulation 55 of the 2014 Tariff Regulations.

101. The matter has been considered. The operating norms specified by the Commission under 2014, Tariff Regulations was based on the prudence check of then data submitted by the petitioner and after the consultation with the stakeholders. Thus, the submission of the petitioner having been considered and disposed of by the Commission. Hence we had no reason to re-open the same. Despite this, if the generating station had lower PLF, it is at liberty to seek thereof by filing an appropriate application, which shall be dealt in accordance with law.



### **Interest on working capital**

102. Sub-section (a) of clause (1) of Regulation 28 of the 2014 Tariff Regulations provides as under:

*“28. Interest on Working Capital:*

*(1) The working capital shall cover*

*(b) Open-cycle Gas Turbine/Combined Cycle thermal generating stations*

*(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;*

*(ii) Maintenance spares @ 30% of operation and maintenance expense specified in regulation 29; and*

*(iii) Liquid fuel stock for 15 days corresponding to the normative annual plant availability factor and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel';*

*(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;*

*(v) Operation and maintenance expenses for one month. ”*

### **Fuel Cost and Energy Charges**

103. The petitioner in its petition has claimed the cost for fuel component in the working capital based on price and GCV of APM gas, Non APM gas, LNG and Naphtha for preceding 3 months from January, 2014 to March, 2014 and the mode of operation between APM gas, Non APM gas, LNG and Naphtha achieved by the generating station during the year 2013-14 which was 86.36%, 13.48% 0.17% and 0.00% respectively as under:-

|                              | <i>(₹ in lakh)</i> |                |                |                |                |
|------------------------------|--------------------|----------------|----------------|----------------|----------------|
|                              | <b>2014-15</b>     | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| Cost of Fuel (gas) – 1 month | 10541.71           | 10570.59       | 10541.71       | 10541.71       | 10541.71       |
| Cost of liquid for 15 days   | 1372.43            | 1372.43        | 1372.43        | 1372.43        | 1372.43        |



104. The petitioner in the said petition has further submitted that though the generation on Naphtha is "Zero" during the said period, it has to maintain the Naphtha stock in view of the requirement of beneficiaries for Naphtha based generation. Accordingly, it has submitted that the stock of Naphtha has to be maintained and therefore cost of Naphtha stock as actually maintained at the generating station may be considered while calculating working capital requirement.

105. However, the petitioner has submitted the fuel details i.e. APM, Non APM, LNG and Naphtha for three months immediately preceding the start of the tariff period, viz. March 2014, February 2014 and January 2014, in terms of provisions of Tariff Regulations 2014 in Form – 15 (APM Gas), 15A (Gas-Non APM), 15B (LNG) and 15C (Naphtha). The petitioner further submitted that the audit process was on during the filing of the petition, as per the provision of the Regulations, the petitioner is now submitting the same details duly certified by statutory Auditors.

106. The fuel components based on the price and GCV of APM gas, Non APM gas, LNG and Naphtha for preceding three months from January, 2014 to March, 2014 and revised mode of operation between APM gas, Non-APM gas, LNG and Naphtha achieved by the generating station during the year 2013-14 was 86.36%, 13.48%, 0.17% and 0.00% respectively computed below is considered for the purpose of tariff for the tariff period 2014-19.

|                                | <i>(₹ in lakh)</i> |          |          |          |          |
|--------------------------------|--------------------|----------|----------|----------|----------|
|                                | 2014-15            | 2015-16  | 2016-17  | 2017-18  | 2018-19  |
| Cost of Fuel (gas) for 30 days | 10528.82           | 10557.67 | 10528.82 | 10528.82 | 10528.82 |
| Cost of liquid for 15 days     | 0.00               | 0.00     | 0.00     | 0.00     | 0.00     |

107. It is observed that the petitioner has considered 1 month (instead of 30 days) for computation of fuel cost (gas) and the cost of liquid fuel (RLNG) procured during the



year 2013-14. The NAPAF of the generating station in terms of the 2014 Tariff Regulations is 85%. It is observed from the computation of energy charges in Form-13F furnished by the petitioner that the generating station was operating at 100% availability on gas (86.36% on APM gas + 13.48% on Non APM gas + 0.17% on LNG). The petitioner has also claimed ₹1372.43 lakh as liquid fuel stock for 15 days. However, the details for working out at the cost of ₹1372.43 lakh of liquid fuel stock, when there was no generation during the months of January, February and March, 2014 has not been furnished/substantiated. In view of this, the cost of liquid fuel (RLNG) for 15 days has been considered as zero in the working capital for the purpose of tariff for the period 2014-19.

### **Energy/ Variable Charges**

108. The petitioner in its petition has claimed Energy Charge Rate (ECR) of 265.539 paisa/kWh based on the weighted average price and GCV of APM gas, Non APM gas, LNG and Naphtha used for operation of the plant during the preceding three months i.e. January, 2014, February-2014 and March, 2014. Based on the norms of operation, GCV & price of domestic Gas, RLNG & Naphtha and mode of operation for the preceding three months are as follows:

| Sl.No. | Description                            | Unit       |            | APM Gas | NON APM GAS | LNG | Naphtha |
|--------|--|------------|------------|---------|-------------|-----|---------|
|        |  | Gas/RLNG   | Naphtha    |         |             |     |         |
| 1      | Normative Heat Rate (For CC Operation) | (kCal/kWh) | (kCal/kWh) | 2050    |             |     |         |
| 2      | Normative Heat Rate (For OC Operation) | (kCal/kWh) | (kCal/kWh) | 3010    |             |     |         |
| 3      | Capacity                               | MW         | MW         | 656.20  |             |     |         |
| 4      | Normative Availability Factor          | %          | %          | 85.00   |             |     |         |
| 5      | APC for CC operation                   | %          | %          | 2.50    |             |     |         |
| 6      | APC for OC operation                   | %          | %          | 1.00    |             |     |         |



| SI.No. | Description   | Unit            |           | APM Gas      | NON APM      | LNG           | Naphtha      |
|--------|---|-----------------|-----------|--------------|--------------|---------------|--------------|
| 7      | Weighted Average Rate of Fuel                                       | Rs./1000S<br>CM | Rs./KL    | 11851.89     | 15773.71     | 54404.56      | 27431.93     |
| 8      | Weighted Average GCV of Fuel  | kCal/SCM        | kCal/Kg   | 9874.63      | 9803.65      | 9626          | 8475.27      |
| 9      | Rate of Energy- Ex Bus-CC   | (Rs./kwh)       | (Rs./kwh) | <b>2.523</b> | <b>3.382</b> | <b>11.885</b> | <b>6.805</b> |
| 10     | Rate of Energy- Ex Bus-OC   | (Rs./kwh)       | (Rs./kwh) | <b>3.649</b> | <b>4.891</b> | <b>17.184</b> | <b>9.840</b> |
| 11     | Mode of Operation on Fuel during 2013-14 (% of Schedule Generation) | %               | %         | 86.36        | 13.48        | 0.17          | 0.00         |
| 12     | Weighted Average Cost of Fuel as per above in 2013-14- Ex Bus CC    | (Rs./kwh)       | (Rs./kwh) | <b>2.655</b> |              |               |              |

109. Based on the norms of operation, the weighted average price and GCV of APM gas, Non APM gas, LNG and Naphtha used for operation of the plant during the preceding three months i.e. January, 2014, February, 2014 and March, 2014 and the mode of operation, the energy charges computed as under is allowed for the purpose of tariff for the period 2014-19.

| SI.No. | Description                              | Unit            |            | APM Gas  | NON APM GAS | LNG      | Naphtha  |
|--------|--|-----------------|------------|----------|-------------|----------|----------|
|        |  | Gas/ RLNG       | Naphtha    |          |             |          |          |
| 1      | Normative Heat Rate (For CC Operation)   | (kCal/kWh)      | (kCal/kWh) | 2050     |             |          |          |
| 2      | Normative Heat Rate (For OC Operation)   | (kCal/kWh)      | (kCal/kWh) | 3010     |             |          |          |
| 3      | Capacity                                 | MW              | MW         | 656.20   |             |          |          |
| 4      | Normative Availability Factor            | %               | %          | 85.00    |             |          |          |
| 5      | APC for CC operation                     | %               | %          | 2.50     |             |          |          |
| 6      | APC for OC operation                     | %               | %          | 1.00     |             |          |          |
| 7      | Weighted Average Rate of Fuel            | Rs./1000S<br>CM | Rs./KL     | 11833.20 | 15773.71    | 54404.56 | 27431.89 |
| 8      | Weighted Average GCV of Fuel             | kCal/SCM        | kCal/Kg    | 9874.63  | 9803.65     | 9625.71  | 8565.27  |
| 9      | Rate of Energy- Ex Bus-CC                | (Rs./kwh)       | (Rs./kwh)  | 2.519    | 3.382       | 11.883   | 6.733    |
| 10     | Rate of Energy- Ex Bus-OC                | (Rs./kwh)       | (Rs./kwh)  | 3.643    | 4.891       | 17.184   | 9.737    |
| 11     | Mode of Operation on Fuel during 2013-14 | %               | %          | 86.36    | 13.48       | 0.17     | 0.00     |



| SI.No. | Description  | Unit      |           | APM Gas      | NON APM | LNG | Naptha |
|--------|--|-----------|-----------|--------------|---------|-----|--------|
|        | (% of Schedule Generation)                                       |           |           |              |         |     |        |
| 12     | Weighted Average Cost of Fuel as per above in 2013-14- Ex Bus CC | (Rs./kwh) | (Rs./kwh) | <b>2.651</b> |         |     |        |

### Energy Charges for two months

110. Energy charges for 2 months on the basis of as billed GCV for the purpose of interest in working capital has been worked out as under:

| <i>(₹ in lakh)</i> |          |          |          |          |
|--------------------|----------|----------|----------|----------|
| 2014-15            | 2015-16  | 2016-17  | 2017-18  | 2018-19  |
| 21057.64           | 21115.33 | 21057.64 | 21057.64 | 21057.64 |

### Maintenance Spares

111. The petitioner has claimed the following maintenance spares in the working capital:

| <i>(₹ in lakh)</i> |         |         |         |         |
|--------------------|---------|---------|---------|---------|
| 2014-15            | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 3639.60            | 3062.73 | 3254.95 | 3459.67 | 3676.96 |

112. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 30% of the operation & maintenance expenses as specified in Regulation 29.

Accordingly, the maintenance spares claimed by the petitioner is allowed as under:

| <i>(₹ in lakh)</i> |         |         |         |         |
|--------------------|---------|---------|---------|---------|
| 2014-15            | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 2986.74            | 3167.86 | 3360.78 | 3565.51 | 3784.03 |

### Receivables

113. Receivables equivalent to two months of capacity charge and energy charges (based on primary fuel only) has been worked out and allowed as under:



|                             | (₹ in lakh)     |                 |                 |                 |                 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                             | 2014-15         | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
| Variable charges – 2 months | 21057.64        | 21115.33        | 21057.64        | 21057.64        | 21057.64        |
| Fixed Charges – 2 months    | 6285.35         | 6577.26         | 6634.81         | 6703.25         | 6781.77         |
| <b>Total</b>                | <b>27342.99</b> | <b>27692.59</b> | <b>27692.45</b> | <b>27760.89</b> | <b>27839.41</b> |

### O&M Expenses (1 month)

114. O&M expenses for 1 month claimed by the petitioner for the purpose of working capital are as under:

| (₹ in lakh) |         |         |         |         |
|-------------|---------|---------|---------|---------|
| 2014-15     | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 850.76      | 904.15  | 961.02  | 1021.38 | 1085.79 |

115. Based on the O&M expense norms specified by the Commission, the O&M expenses for 1 month is allowed as under:

| (₹ in lakh) |         |         |         |         |
|-------------|---------|---------|---------|---------|
| 2014-15     | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 829.65      | 879.96  | 933.55  | 990.42  | 1051.12 |

### Rate of interest on working capital

116. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as under:

*“Interest on working Capital: (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.”*

117. In terms of the above regulations, SBI PLR of 13.50% (Bank rate 10.00 + 350bps) has been considered for the purpose of calculating interest on working capital.

Interest on working capital has been computed as under:



(₹ in lakh)

|  | 2014-15        | 2015-16        | 2016-17        | 2017-18        | 2018-19        |
|--|----------------|----------------|----------------|----------------|----------------|
| Fuel cost (APM, Non APM and LNG) - 1 month | 10528.82       | 10557.67       | 10528.82       | 10528.82       | 10528.82       |
| Liquid fuel stock - 1/2 month              | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Maintenance spares                         | 2986.74        | 3167.86        | 3360.78        | 3565.51        | 3784.03        |
| O&M expense 1 month                        | 829.65         | 879.96         | 933.55         | 990.42         | 1051.12        |
| Receivables 2 months                       | 27342.99       | 27692.59       | 27692.45       | 27760.89       | 27839.41       |
| Total working capital                      | 41688.21       | 42298.07       | 42515.60       | 42845.64       | 43203.37       |
| Rate of Interest                           | 13.50%         | 13.50%         | 13.50%         | 13.50%         | 13.50%         |
| IWC Calculated                             | <b>5627.91</b> | <b>5710.24</b> | <b>5739.61</b> | <b>5784.16</b> | <b>5832.46</b> |

### Annual Fixed charges for 2009-14

118. Accordingly, the annual fixed charges approved for the generating station for the period from 1.4.2014 to 31.3.2019 is summarized as under:

(₹ in lakh)

|                             | 2014-15         | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Depreciation                | 3310.89         | 3786.36         | 3784.49         | 3784.49         | 3784.49         |
| Interest on Loan            | 2129.64         | 2282.09         | 1956.84         | 1640.44         | 1334.88         |
| Return on Equity            | 16687.86        | 17125.35        | 17125.35        | 17125.35        | 17125.35        |
| Interest on Working Capital | 5627.91         | 5710.24         | 5739.61         | 5784.16         | 5832.46         |
| O & M Expenses              | 9955.81         | 10559.52        | 11202.59        | 11885.04        | 12613.42        |
| <b>Total</b>                | <b>37712.11</b> | <b>39463.56</b> | <b>39808.88</b> | <b>40219.48</b> | <b>40690.60</b> |

Note : ( 1) All figures are on annualized basis. (2) All the figures under each head have been rounded. The figure in total column in each year is also rounded. Because of rounding of each figure the total may not be arithmetic sum of individual items in columns

### Month to Month Energy Charges

119. Clause 6 sub-clause (b) of Regulation 30 of the 2014 Tariff Regulations provides for 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:

(b) For gas based and liquid fuel based stations

$$ECR = GHR \times LPPF \times 100 / \{CVPF \times (100 - AUX)\}$$



*Where,*

*AUX = Normative auxiliary energy consumption in percentage.*

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

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

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

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

120. The petitioner shall compute and claim the Energy Charges on month to month basis from the beneficiaries based on the above formulae.

121. The petitioner has been directed by the Commission in its order dated 19.2.2016 in Petition No. 33/MP/2014 to introduce helpdesk to attend to the queries of the beneficiaries with regard to the Energy Charges. Accordingly, contentious issues if any, which arise regarding the Energy Charges, should be sorted out with the beneficiaries at the Senior Management level.

### **Application Fee and Publication Expenses**

122. The petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the period 2014-19. The petitioner has already paid the requisite filing fees for the period 2014-15 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 5.1.2016 in Petition No. 232/GT/2014, we direct that the petitioner shall be entitled to recover pro rata, the filing fees and the expenses incurred on publication of notices for the period 2014-15 directly from the respondents on submission of documentary proof. The filing fees for the



remaining years of the tariff period 2015-19 shall be recovered pro rata after deposit of the same and production of documentary proof.

123. The annual fixed charges approved as above are subject to truing -up in terms of Regulation 8 of the 2014 Tariff Regulations.

124. Petition No. 341/GT/2014 is disposed of in terms of the above.

**Sd/-**  
**(Dr. M. K. Iyer)**  
**Member**

**Sd/-**  
**(A.K. Singhal)**  
**Member**

**Sd/-**  
**(Gireesh B. Pradhan)**  
**Chairperson**



**Annexure-I****CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN  
FOR TARIFF PERIOD 2014-19**

*(₹ in lakh)*

|                                   | 2014-15   | 2015-16   | 2016-17   | 2017-18   | 2018-19   |
|-----------------------------------|-----------|-----------|-----------|-----------|-----------|
| Net opening loan                  | 35,093.37 | 35,091.87 | 33,002.87 | 30,913.87 | 28,824.87 |
| Add: Addition during the period   | -         | -         | -         | -         | -         |
| Less: Repayment during the period | 1.50      | 2,089.00  | 2,089.00  | 2,089.00  | 2,087.50  |
| Net Closing Loan                  | 35,091.87 | 33,002.87 | 30,913.87 | 28,824.87 | 26,737.37 |
| Average Loan                      | 35,092.62 | 34,047.37 | 31,958.37 | 29,869.37 | 27,781.12 |
| Rate of Interest (%)              | 6.9752    | 6.8745    | 6.6534    | 6.4013    | 6.1115    |
| Interest                          | 2,447.78  | 2,340.58  | 2,126.31  | 1,912.04  | 1,697.84  |

