

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 78/TT/2021**

**Coram:**

**Shri I. S. Jha, Member  
Shri Arun Goyal, Member  
Shri P. K. Singh, Member**

**Date of Order : 27.03.2023**

**In the matter of:**

Approval under Regulation 86 of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 and revision of transmission tariff for 2001-04, 2004-09 and 2009-14 tariff periods and truing up of transmission tariff for 2014-19 tariff period under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 and determination of transmission tariff for 2019-24 tariff period under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for Rihand Transmission System in Northern Region.

**And in the matter of:**

Power Grid Corporation of India Limited  
SAUDAMINI, Plot No-2, Sector-29,  
Gurgaon-122001 (Haryana).

**.....Petitioner**

**Versus**

1. Rajasthan Rajya Vidyut Prasaran Nigam Limited,  
Vidyut Bhawan, Vidyut Marg,  
Jaipur-302005 (Rajasthan).
2. Ajmer Vidyut Vitran Nigam Limited,  
132 kV, GSS RVPNL Sub-station Building,  
Caligiri Road, Malviya Nagar,  
Jaipur-302017 (Rajasthan).
3. Jaipur Vidyut Vitran Nigam Limited,  
132 kV, GSS RVPNL Sub-station Building,  
Caligiri Road, Malviya Nagar,  
Jaipur-302017 (Rajasthan).
4. Jodhpur Vidyut Vitran Nigam Limited,  
132 kV, GSS RVPNL Sub-station Building,  
Caligiri Road, Malviya Nagar,  
Jaipur-302017 (Rajasthan).



5. Himachal Pradesh State Electricity Board,  
Vidyut Bhawan, Kumar House Complex Building-II,  
Shimla-171004 (Himachal Pradesh).
6. Punjab State Electricity Board,  
The Mall, Patiala-147001
7. Haryana Power Purchase Centre,  
Shakti Bhawan, Sector-6,  
Panchkula-134109 (Haryana).
8. Power Development Department,  
Government of Jammu & Kashmir,  
Mini Secretariat, Jammu.
9. Uttar Pradesh Power Corporation Limited,  
(Formerly Uttar Pradesh State Electricity Board),  
Shakti Bhawan, 14, Ashok Marg,  
Lucknow-226001 (Uttar Pradesh).
10. Delhi Transco Limited,  
Shakti Sadan, Kotla Road,  
New Delhi-110002.
11. BSES Yamuna Power Limited,  
BSES Bhawan, Nehru Place,  
New Delhi.
12. BSES Rajdhani Power Limited,  
BSES Bhawan, Nehru Place,  
New Delhi-110019.
13. Tata Power Delhi Distribution Limited (TPDDL),  
33 kV Sub-station Building,  
Hudson Lane, Kingsway Camp,  
North Delhi-110009.
14. Chandigarh Administration,  
Sector-9, Chandigarh.
15. Uttarakhand Power Corporation Limited,  
Urja Bhawan, Kanwali Road,  
Dehradun (Uttarakhand).
16. North Central Railway,  
Allahabad (Uttar Pradesh).
17. New Delhi Municipal Council,  
Palika Kendra, Sansad Marg,  
New Delhi-110002.

**...Respondent(s)**



**For Petitioner** : Shri S.S. Raju, PGCIL  
Shri D.K. Biswal, PGCIL  
Shri V.P. Rastogi, PGCIL  
Shri A.K. Verma, PGCIL

**For Respondent** : None

### ORDER

Power Grid Corporation of India Limited has filed the instant petition for revision of transmission tariff for 2001-04, 2004-09 and 2009-14 tariff periods, truing up of the transmission tariff for the tariff period from 1.4.2014 to 31.3.2019 under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as “the 2014 Tariff Regulations”) and for determination of transmission tariff of the tariff period from 1.4.2019 to 31.3.2024 under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as “the 2019 Tariff Regulations”) in respect of the **Asset-I**: HVDC Portion; and **Asset-II**: AC Portion (hereinafter referred to as the “transmission assets”) under Rihand Transmission System (hereinafter referred to as the “transmission project’) in Northern Region.

2. The Petitioner has made the following prayers in the instant Petition:

*“1) Approve the revised Transmission Tariff for 2001-04 block, 2004-09 block and 2009-14 block for the assets covered under this petition, as per para 8 above.*

*2) Approve the trued up Transmission Tariff for 2014-19 block and transmission tariff for 2019-24 block for the assets covered under this petition as per para 9 and 10 above.*

*3) Allow add-cap claimed during 2014-19 & 2019-24 already approved vide order dated 28.01.2016 and also fresh add- cap projected during 2019-24.*

*4) Allow the petitioner to recover the shortfall or refund the excess Annual Fixed Charges, on account of Return on Equity due to change in applicable Minimum Alternate/Corporate Income Tax rate as per the Income Tax Act, 1961 (as amended from time to time) of the respective financial year directly without making any application before the Commission as provided in Tariff regulations 2014 and tariff regulation’19 as per para 9.0 & 10 above for respective block.*

*Further it is submitted that deferred tax liability before 01.04.2009 shall be recoverable from the beneficiaries or long term customers /DIC as the case may be, as and when*



*the same is materialized as per regulation 49 of 2014 and regulation 67 of 2019 tariff regulation. The petitioner may be allow to recover the deferred tax liability materialized directly without making any application before the commission as provided in the regulation.*

*5) Approve the reimbursement of expenditure by the beneficiaries towards petition filing fee, and expenditure on publishing of notices in newspapers in terms of Regulation 70 (1) Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019, and other expenditure ( if any) in relation to the filing of petition.*

*6) Allow the petitioner to bill and recover Licensee fee and RLDC fees and charges, separately from the respondents in terms of Regulation 70 (3) and (4) Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019.*

*7) Allow the petitioner to bill and adjust impact on Interest on Loan due to change in Interest rate on account of floating rate of interest applicable during 2019-24 period, if any, from the respondents.*

*8) Allow the petitioner to file a separate petition before Hon'ble Commission for claiming the overall security expenses and consequential IOWC on that security expenses as mentioned at para 10.5 above.*

*9) Allow the petitioner to claim the capital spares at the end of tariff block as per actual.*

*10) Allow the Petitioner to bill and recover GST on Transmission Charges separately from the respondents, if GST on transmission is withdrawn from negative list at any time in future. Further, any taxes including GST and duties including cess etc. imposed by any statutory/Govt./municipal authorities shall be allowed to be recovered from the beneficiaries.*

*and pass such other relief as Hon'ble Commission deems fit and appropriate under the circumstances of the case and in the interest of justice.”*

### **Background**

3. The brief facts of the matter are as follows:

(a) The Investment Approval (IA) of the transmission project was accorded by the (MoP) vide its letter dated 31.5.1989 at an estimated cost of ₹106300.00 lakh, which included IDC of ₹3850.00 lakh. Subsequently, Revised Cost Estimate (RCE) for the transmission project was accorded by the Ministry of Power (MoP) vide letter dated 19.4.1995 at an estimated cost of ₹146058.00 lakh, which included IDC of ₹13097.00 lakh. The details of approved scope of work and dates of commercial operation of the different components of the transmission project are as follows:



| Sl. No | Name of the line                                | Date of commercial operation |
|--------|---|------------------------------|
| 1      | Rihand-Kanpur 400 kV S/C line                   | 26.12.1988                   |
| 2      | Kanpur-Ballabgarh 400 kV S/C line               | 10.10.1988                   |
| 3      | Ballabgarh-Jaipur 400 kV S/C line               | 10.10.1988                   |
| 4      | Ballabgarh-Dadri 400 kV D/C line Ckt-I & Ckt-II | 26.6.1990 and 1.7.1990       |
| 5      | Dadri-Mandola 400 kV D/C line                   | 22.11.1990                   |
| 6      | Dadri-Malerkotla 400 kV S/C line                | 30.6.1992                    |
| 7      | Rihand-Dadri Pole-I 500 kV HVDC                 | 10.1.1992                    |
| 8      | Rihand-Dadri Pole-II 500 kV HVDC                | 20.5.1991                    |

(b) The details of the COD of the transmission assets are as follows:

| Assets   | Particulars                                | COD      |
|----------|--|----------|
| Asset-I  | HVDC Portion of Rihand Transmission System | 1.4.1992 |
| Asset-II | AC Portion of Rihand Transmission System   | 1.4.1992 |

(c) The tariff for 2001-04 tariff period for all the transmission asset was allowed *vide* order dated 26.2.2004 in Petition No. 38/2002. The tariff was revised *vide* order dated 8.2.2008 in Petition No. 38/2002 on account of decapitalisation of ₹34.68 lakh during 2002-03.

(d) The tariff for 2004-09 for the transmission assets was allowed *vide* order dated 9.5.2006 in Petition No. 96/2004. Further, the tariff was revised *vide* order dated 29.2.2008 on account of revision in FERV and restoration of equity.

(e) The tariff for 2009-14 tariff period was allowed *vide* order dated 7.9.2012 in Petition No. 326/2010. Further, the tariff of the 2009-14 tariff period was trued up and tariff for 2014-19 was determined *vide* order dated 28.1.2016 in Petition No. 133/TT/2015.

(f) The Petitioner has sought revision of transmission tariff allowed for 2001-04 and 2004-09 tariff periods on account of change in Interest on Loan (IoL) and Interest on Working Capital (IWC) to the extent of revision in IoL and in Maintenance Spares in terms of the judgements of the Appellate Tribunal for



Electricity (hereinafter referred to as “APTEL”) dated 22.1.2007 in Appeal No. 81 of 2005 and batch matters and dated 13.6.2007 in Appeal No. 139 of 2006 and batch matters. The Petitioner has also sought consequential revision of tariff allowed for the 2009-14 tariff period, truing up of tariff of 2014-19 tariff period and determination of tariff for 2019-24 tariff period for the transmission assets.

4. The Respondents are distribution licensees and power departments, which are procuring transmission service from the Petitioner, mainly beneficiaries of the Northern Region.

5. The Petitioner has served the petition on the Respondents and notice regarding filing of this petition has been published in the newspapers in accordance with Section 64 of the Electricity Act, 2003. No comments/ objections have been received from the general public in response to the aforesaid notice published in the newspapers by the Petitioner. None of the respondents have filed any reply in the instant petition.

6. We have considered the submissions of the Petitioner regarding the revision of tariff of 2001-04, 2004-09 and 2009-14 tariff periods. APTEL vide judgment dated 22.1.2007 in Appeal No. 81 of 2005 and batch matters observed that IoL for the period from 1.4.1998 to 31.3.2001 shall be computed only on normative loan repayment as per its judgment dated 14.11.2006 in Appeal No. 94 of 2005 and Appeal No. 96 of 2005. APTEL vide its judgment dated 14.11.2006 had set aside the Commission’s methodology of computation of loan on actual repayment basis or normative repayment whichever is higher and held that the Commission is required to adopt normative debt repayment methodology for working out IoL liability order for the period from 1.4.1998 to 31.3.2001. APTEL vide judgment dated 13.6.2007 in Appeal No. 139/2006 and batch matters further held that Additional Capital Expenditure (ACE) after COD should also



be considered for computation of maintenance spares. Further, APTEL in its judgement dated 13.6.2007 in Appeal No.139 of 2006 and batch matters observed that depreciation is an expense and it cannot be deployed for deemed repayment of loan, and, accordingly directed the Commission to compute the outstanding loan afresh. The Commission and certain interested parties filed Civil Appeals against the APTEL's judgments before the Hon'ble Supreme Court in 2007. Based on the APTEL's judgments dated 22.1.2007 and 13.6.2007, the Petitioner had sought revision of tariff of its transmission assets for 2001-04 and 2004-09 tariff periods in Petition No.121/2007. The Commission taking into consideration the pendency of Appeals before the Hon'ble Supreme Court adjourned the said petition *sine die* and directed that the same be revived after the disposal of Civil Appeals by the Hon'ble Supreme Court.

7. The Hon'ble Supreme Court vide order dated 10.4.2018, dismissed the said Civil Appeals filed against the APTEL's said judgments. Thus, the judgements of APTEL have attained finality. Consequent to the Hon'ble Supreme Court's order dated 10.4.2018 in NTPC matters, Petition No. 121/2007 was listed for hearing on 8.1.2019. The Commission vide order dated 18.1.2019 in Petition No. 121/2007, directed the Petitioner to submit its claim separately for the assets at the time of filing of truing up petition for 2014-19 tariff period.

8. On the basis of the above directions in order dated 18.1.2019 in Petition No. 121/2007, PGCIL sought revision of the tariff allowed earlier for the 2001-04 and 2004-09, 2009-14 tariff periods in all applicable cases and the consequent revision of tariff of 2014-19 tariff period. The Commission has revised the tariff of the 2001-04 and 2004-09 tariff periods allowed earlier for the transmission assets of the Petitioner on the basis of the APTEL's judgement at the stage of truing up of the 2014-19 tariff and



determination of tariff of the 2019-24 tariff period in some of the petitions filed by the Petitioner.

9. In a similar case, the Petitioner filed Petition No.288/TT/2019 for revision of transmission tariff for 2001-04, 2004-09, 2009-14 tariff periods, truing-up of transmission tariff of 2014-19 tariff period and determination of transmission tariff for 2019-24 tariff period for LILO of 400 kV S/C Chamera-1 Kishenpur transmission line at Chamera-II under transmission project associated with Chamera HEP Stage-II transmission project in Northern Region. BRPL objected to the re-opening of the tariff of the transmission assets where final tariff has already been determined, on the ground that no appeal was filed by Petitioner against them and as such the orders of the Commission passed therein have attained finality. The objections of BRPL were rejected by the Commission vide order dated 6.11.2019 and tariff of 2001-04, 2004-09 and 2009-14 tariff periods earlier allowed for LILO of 400 kV S/C Chamera-1 Kishenpur transmission line at Chamera-II under transmission project associated with Chamera HEP Stage-II Transmission System in Northern Region was revised by the Commission vide order dated 31.7.2020. BRPL and BYPL filed Appeal No.212 of 2020 and IA No.1683 of 2022 and Appeal No. 335 of 2022 and IA No.1580 of 2020 respectively against the Commission's orders dated 6.11.2019 and 31.7.2020 in Petition No. 288/TT/2019 before APTEL. APTEL vide judgement dated 17.10.2022 in the abovesaid Appeals has set aside the Commission's interim dated 6.11.2019 and the final order dated 31.7.2020 in Petition No. 288/TT/2019 filed by the Petitioner. The relevant portion of the APTEL's judgement dated 17.10.2022 is as follows:

*"25. For the foregoing reasons, we find that the objections taken by the appellants to the maintainability of the petition (no. 288/TT/2019), in the case involving them, were wrongly rejected by the Central Commission by Order dated 6.11.2019. We hold to the contrary and, thus, set aside and vacate the said order. Resultantly, the subsequent proceedings in same matter taken out before the Central Commission are found to be*





*impermissible rendering the final Order dated 31.07.2020 non est. The same is also consequently set aside.*

*26. The appeals are allowed in above terms. The pending applications are rendered infructuous and stand disposed of accordingly.”*

10. In view of the above referred APTEL’s judgement dated 17.10.2022 in Appeal No. 212 of 2020 and IA No.1683 of 2022 and Appeal No.335 of 2022 and IA No.1580 of 2020, the Petitioner’s prayer for revision of transmission tariff of 2004-09 and 2009-14 tariff periods of the transmission assets is not allowed.

11. The hearing in this matter was held on 23.6.2022 through video conference and the Commission reserved the order in the matter.

12. This order is issued considering the submissions made by the Petitioner in the petition *vide* affidavit dated 28.1.2020, and *vide* affidavits dated 27.7.2021, 27.8.2021 and 21.7.2022.

13. Having heard the representatives of the Petitioner and perused the material on record, we proceed to dispose of the petition.

### **TRUING UP OF ANNUAL FIXED CHARGES FOR THE 2014-19 TARIFF PERIOD**

14. Regulation 6(1) (i) of the 2014 Tariff Regulations provides as follows:

***“6. Tariff determination***

*(1) Tariff in respect of a generating station may be determined for the whole of the generating station or stage or generating unit or block thereof, and tariff in respect of a transmission system may be determined for the whole of the transmission system or transmission line or sub-station or communication system forming part of transmission system:*

*Provided that:*

*(i) where all the generating units of a stage of a generating station or all elements of a transmission system have been declared under commercial operation prior to 1.4.2014, the generating company or the transmission licensee, as the case may be, shall file consolidated petition in respect of the entire generating station or transmissions system for the purpose of determination of tariff for the period 2014-15 to 2018-19:*



15. The instant transmission assets were put into commercial operation prior to 1.4.2014 and the instant petition consists of entire scope of the transmission project. As per Regulation 6(1)(i) of the 2014 Tariff Regulations, the Petitioner is required to file consolidated petition in respect of the entire transmission project for the purpose of determination of tariff for the period 1.4.2014 to 31.3.2019. However, it is observed that several assets under the transmission project have already been clubbed in two groups, namely Asset-I (HVDC portion) and Asset-II (AC portion) as per the requirement of the Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010 (2010 Sharing Regulations) (as amended from time to time). Accordingly, the transmission tariff is being calculated separately during 2014-19 tariff period.

16. The details of the transmission charges claimed by the Petitioner in respect of the transmission assets is as follows:

(₹ in lakh)

| <b>Asset-I</b>              |                 |                 |                 |                 |                 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Particular</b>           | <b>2014-15</b>  | <b>2015-16</b>  | <b>2016-17</b>  | <b>2017-18</b>  | <b>2018-19</b>  |
| Depreciation                | 1218.33         | 1401.51         | 1872.69         | 2858.21         | 3432.77         |
| Interest on Loan            | 10.05           | 10.05           | 53.18           | 93.91           | 42.61           |
| Return on Equity            | 6803.13         | 6908.27         | 7038.25         | 7231.17         | 7317.36         |
| O&M Expenses                | 2397.53         | 2552.80         | 2719.86         | 2899.57         | 3092.13         |
| Interest on Working Capital | 317.31          | 332.53          | 356.59          | 394.58          | 419.25          |
| <b>Total</b>                | <b>10746.35</b> | <b>11205.16</b> | <b>12040.57</b> | <b>13477.44</b> | <b>14304.12</b> |

(₹ in lakh)

| <b>Asset-II</b>             |                |                |                |                |                |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|
| <b>Particular</b>           | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| Depreciation                | 1138.83        | 1282.09        | 1341.63        | 1425.14        | 1627.00        |
| Interest on Loan            | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Return on Equity            | 5536.57        | 5591.71        | 5512.78        | 5503.98        | 5544.14        |
| O&M Expenses                | 2514.80        | 2586.65        | 2358.25        | 2316.42        | 2385.53        |
| Interest on Working Capital | 292.58         | 301.06         | 295.46         | 290.71         | 296.85         |
| <b>Total</b>                | <b>9482.78</b> | <b>9761.51</b> | <b>9508.12</b> | <b>9536.25</b> | <b>9853.52</b> |

17. The details of the Interest on Working Capital (IWC) claimed by the Petitioner in respect of the transmission assets are as follows:



(₹ in lakh)

| Asset-I                            |                |                |                |                |                |
|------------------------------------|----------------|----------------|----------------|----------------|----------------|
| Particular                         | 2014-15        | 2015-16        | 2016-17        | 2017-18        | 2018-19        |
| O&M Expenses                       | 199.79         | 212.73         | 226.65         | 241.63         | 257.68         |
| Maintenance Spares                 | 359.63         | 382.92         | 407.98         | 434.93         | 463.82         |
| Receivables                        | 1791.06        | 1867.53        | 2006.76        | 2246.24        | 2384.02        |
| <b>Total Working Capital</b>       | <b>2350.48</b> | <b>2463.18</b> | <b>2641.40</b> | <b>2992.81</b> | <b>3105.52</b> |
| Rate of Interest (in %)            | 13.50          | 13.50          | 13.50          | 13.50          | 13.50          |
| <b>Interest on Working Capital</b> | <b>317.31</b>  | <b>332.53</b>  | <b>356.59</b>  | <b>394.58</b>  | <b>419.25</b>  |

(₹ in lakh)

| Asset-II                           |                |                |                |                |                |
|------------------------------------|----------------|----------------|----------------|----------------|----------------|
| Particular                         | 2014-15        | 2015-16        | 2016-17        | 2017-18        | 2018-19        |
| O&M Expenses                       | 209.57         | 216.59         | 207.70         | 197.94         | 198.79         |
| Maintenance Spares                 | 377.22         | 389.86         | 373.87         | 356.29         | 357.83         |
| Receivables                        | 1580.46        | 1623.66        | 1607.05        | 1599.19        | 1642.25        |
| <b>Total Working Capital</b>       | <b>2167.25</b> | <b>2230.11</b> | <b>2188.62</b> | <b>2153.42</b> | <b>2198.87</b> |
| Rate of Interest (in %)            | 13.50          | 13.50          | 13.50          | 13.50          | 13.50          |
| <b>Interest on Working Capital</b> | <b>292.58</b>  | <b>301.06</b>  | <b>295.46</b>  | <b>290.71</b>  | <b>296.85</b>  |

### Capital Cost as on 1.4.2014

18. The capital cost of the transmission assets has been calculated in accordance with Regulation 9(3) of the 2014 Tariff Regulations. The Commission *vide* order dated 28.1.2016 in Petition No. 133/TT/2015 had allowed the transmission tariff for the 2014-19 period based on following admitted capital cost as on 31.3.2014 and ACE for the 2014-19 period for the transmission assets:

#### **Asset-I (HVDC Portion)**

(₹ in lakh)

| Capital cost as on 31.3.2014 | ACE     |          |          |         | Decapitalisation |         |         | Capital cost as on 31.3.2019 |
|------------------------------|---------|----------|----------|---------|------------------|---------|---------|------------------------------|
|                              | 2014-15 | 2016-17  | 2017-18  | 2018-19 | 2016-17          | 2017-18 | 2018-19 |                              |
| 71193.91                     | 299.72  | 12210.23 | 29346.60 | 9477.33 | 1706.34          | 4101.10 | 1324.43 | 115395.92                    |

#### **Asset-II (AC Portion)**

(₹ in lakh)

| Capital cost as on 31.3.2014 | ACE     |         |         |         | Admitted Decapitalisation |         |         |         | Capital cost as on 31.3.2019 |
|------------------------------|---------|---------|---------|---------|---------------------------|---------|---------|---------|------------------------------|
|                              | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2014-15                   | 2015-16 | 2016-17 | 2017-18 |                              |
| 58639.46                     | 837.91  | 1520.99 | 850.01  | 350.00  | 86.74                     | 161.76  | 146.52  | 66.60   | 61736.75                     |



19. The same capital cost as on 31.3.2014, admitted *vide* order dated 28.1.2016 in Petition No. 133/TT/2015, has been considered for truing up the tariff of the 2014-19 tariff period.

**Additional Capital Expenditure (ACE) and De-capitalisation**

20. The Commission *vide* order dated 28.1.2016 in Petition No. 133/TT/2015 has allowed ACE of ₹51333.88 lakh and ₹3558.91 lakh in respect of Asset-I and Asset-II, respectively for 2014-19 tariff period. Further, the Commission *vide* order dated 28.1.2016 in Petition No. 133/TT/2015 has approved the decapitalisation of ₹7131.87 lakh and ₹461.62 lakh in respect of Asset-I and Asset-II respectively for 2014-19 tariff period.

21. The year wise net ACE allowed by the Commission *vide* order dated 28.1.2016 in Petition No. 133/TT/2015 for Asset-I and Asset-II are as follows:

**Asset-I:**

| (₹ in lakh)       |         |         |          |          |         |
|-------------------|---------|---------|----------|----------|---------|
| Particulars       | 2014-15 | 2015-16 | 2016-17  | 2017-18  | 2018-19 |
| ACE               | 299.72  | -       | 12210.23 | 29346.60 | 9477.33 |
| De-capitalisation | -       | -       | 1706.34  | 4101.10  | 1324.43 |

**Asset-II:**

| (₹ in lakh)       |         |         |         |         |
|-------------------|---------|---------|---------|---------|
| Particulars       | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
| ACE               | 837.91  | 1520.99 | 850.01  | 350.00  |
| De-capitalisation | 86.74   | 161.76  | 146.52  | 66.60   |

22. The Commission *vide* order dated 28.1.2016 in Petition No. 133/TT/2015 has allowed ACE towards the following items and the same is as follows:



(₹ in lakh)

| Sl. No.                           | Equipment to be replaced             | Qty | Location | ACE approved  | De-capitalisation approved |
|-----------------------------------|--------------------------------------|-----|----------|---------------|----------------------------|
|                                   |                                      |     |          | 2014-15       | 2014-15                    |
| 1                                 | New DG set at HVDC Rihand substation | 1   | Rihand   | 299.72        | 0                          |
| <b>Total spill over (2009-14)</b> |                                      |     |          | <b>299.72</b> | <b>0</b>                   |

(₹ in lakh)

| Sl. No. | Equipment to be replaced   | Qty | Location       | ACE approved during 2015-19 | De-capitalisation approved during 2015-19 |
|---------|--|-----|----------------|-----------------------------|---|
| 1       | <b>Replacement of Snubber capacitors for Pole-1 and Pole-2 at HVDC Rihand and Dadri</b><br>o For all Quadruples (R,Y & B Phases) of Pole-1 & Pole-2 at HVDC Rihand.<br>o For all Quadruples (R,Y & B Phases) of Pole-2 at HVDC Dadri | 3   | Rihand & Dadri | 6345.00                     | 886.69                                    |
| 2       | Replacement of Light Guides (7 quadruples)   | 7   | Rihand & Dadri | 1052.33                     | 147.06                                    |
| 3       | Replacement of TCUs: For all Quadruples (R,Y & B Phases) of Pole-1 & Pole-2 at HVDC Dadri and HVDC Rihand  | 4   | Rihand & Dadri | 3400.00                     | 475.14                                    |
| 4       | Replacement of Valve Cooling System: Valve cooling system of Pole-1 & Pole-2 with Dry type cooling system at HVDC Dadri and HVDC Rihand  | 2   | Rihand & Dadri | 3201.66                     | 447.42                                    |
| 5       | Replacement of Control System: Complete control system at HVDC Rihand and HVDC Dadri   | 2   | Rihand & Dadri | 24200.00                    | 3381.88                                   |
| 6       | Refurbishment of 400 kV ABB make CBs   | 18  | Rihand & Dadri | 1982.50                     | 277.05                                    |
| 7       | Retrofitment of 400 kV BHEL make CBs   | 18  | Rihand & Dadri | 1982.50                     | 277.05                                    |
| 8       | Refurbishment of 145 kV DC Breakers: 08 numbers  | 8   | Rihand & Dadri | 384.00                      | 53.66                                     |
| 9       | Refurbishment of 145 kV/2500 Amps Disconnectors without Earthswitch: 14 numbers  | 14  | Rihand & Dadri | 63.00                       | 8.80                                      |
| 10      | Refurbishment of 145 kV/2500 Amps Disconnectors with one Earthswitch: 08 numbers   | 8   | Rihand & Dadri | 46.15                       | 6.45                                      |
| 11      | Refurbishment of 145 kV/ 2500Amps Disconnectors with Two Earthswitch: 01 number  | 1   | Rihand         | 6.60                        | 0.92                                      |



| Sl. No. | Equipment to be replaced   | Qty | Location       | ACE approved during 2015-19 | De-capitalisation approved during 2015-19 |
|---------|--|-----|----------------|-----------------------------|---|
| 12      | Refurbishment of 420 kV/3150 Amps Disconnectors with one Earthswitch: 56 numbers   | 56  | Rihand & Dadri | 154.56                      | 21.60                                     |
| 13      | Refurbishment of 420 kV/3150 Amps Disconnectors with Two Earthswitch: 04 numbers   | 4   | Rihand & Dadri | 12.60                       | 1.76                                      |
| 14      | Refurbishment of 550 kV/3150 Amps Disconnectors without Earthswitch: 04 numbers  | 4   | Rihand & Dadri | 62.40                       | 8.72                                      |
| 15      | Refurbishment of 550 kV/3150 Amps Disconnectors with one Earthswitch: 08 numbers   | 8   | Rihand & Dadri | 159.58                      | 22.30                                     |
| 16      | Refurbishment of 550 kV/3150 Amps Disconnectors with Two Earthswitch: 04 numbers   | 4   | Rihand & Dadri | 84.00                       | 11.74                                     |
| 17      | 145 kV Earth Switch: 04 numbers  | 4   | Rihand & Dadri | 94.68                       | 13.23                                     |
| 18      | 420 kV Earth Switch: 18 numbers  | 18  | Rihand & Dadri | 576.00                      | 80.49                                     |
| 19      | Replacement of Valve hall Ventilation System: For Pole-1 and Pole-2 at HVDC Rihand and HVDC Dadri - 08 Sets              | 8   | Rihand & Dadri | 1312.00                     | 183.35                                    |
| 20      | Replacement of Electronic unit of DCCT: For Pole-1 and Pole-2 at HVDC Rihand and HVDC Dadri - 24 numbers                 | 24  | Rihand & Dadri | 768.00                      | 107.33                                    |
| 21      | Replacement of Bushings for Transformers and Smoothing Reactors-o GSA 73 Neutral (H01 & H02) Bushings for Transformer    | 3   | Rihand & Dadri | 142.20                      | 19.87                                     |
| 22      | Replacement of Bushings for Transformers and Smoothing Reactors GSB 550 (H1) Bushings for Transformer: 02 numbers        | 2   | Rihand & Dadri | 284.40                      | 39.74                                     |
| 23      | Replacement of Bushings for Transformers and Smoothing Reactors, GSC 400 (X3 & X4) Bushings for Transformer: 02 numbers  | 2   | Rihand & Dadri | 180.00                      | 25.15                                     |
| 24      | Replacement of Bushings for Transformers and Smoothing Reactors, GOF 1550 (X1 & X2) Bushings for Transformer: 21 numbers | 21  | Rihand & Dadri | 3150.00                     | 440.20                                    |
| 25      | Replacement of Bushings for Transformers and Smoothing Reactors, GOF 1550 (X1)   | 7   | Rihand & Dadri | 1050.00                     | 146.73                                    |



| Sl. No.                                    | Equipment to be replaced  | Qty | Location       | ACE approved during 2015-19 | De-capitalisation approved during 2015-19 |
|--|---|-----|----------------|-----------------------------|---|
|  | Bushings for Smoothing Reactor:<br>07 numbers   |     |                |                             |   |
| 26   | Replacement of Bushings for Transformers and Smoothing Reactors, GOF 1950 (X2)<br>Bushings for Smoothing Reactor:<br>02 numbers | 2   | Rihand & Dadri | 340.00                      | 47.51                                     |
| <b>TOTAL (ACE approved during 2015-19)</b> |   |     |                | <b>51034.17</b>             | <b>7131.87</b>                            |

23. The Commission vide order dated 28.1.2016 in Petition No. 133/TT/2015 held as follows:

*“47. Based on analysis of the documents furnished by the petitioner and the facts discussed above, we are convinced about the need for replacement of elements. However, it is seen that as a result of the proposed additional capital expenditure, the capital cost of the transmission system as on 31.3.2019 will be ₹177132.37 lakh (Asset-I: ₹115395.62 lakh and Asset-II: ₹61736.75 lakh). This exceeds the revised cost estimate of ₹146058.00 lakh approved vide Ministry of Power letter dated 19.4.1995 by ₹31074.37 lakh. However, considering the requirement of the up gradation and its impact on operational efficiency, the additional capital expenditure is allowed under Regulation 14(3)(ix) read along with Regulation 14(3)(vii) of the 2014 Tariff Regulations. However, the petitioner is directed to submit the approval of its Board for replacement of these equipments at the time of true-up.”*

24. In compliance of the above direction of the Commission, the Petitioner has submitted extracts of minutes of 364<sup>th</sup> meeting of Board of Directors of the Petitioner Company held on 27.3.2019 wherein the following resolution was passed:

*“Resolved that the proposal for implementation of “Refurbishment of Rihand-Dadri HVDC System under Additional Capital Expenditure” at an estimated cost of ₹715.40 Crore including IDC of ₹20.33 Crore based on September, 2018 price level, with commissioning schedule of 24 months from the date of Board approval, be and is hereby approved, as per the memorandum submitted before the Board of Directors.”*

25. The Petitioner has claimed the following net ACE in the instant petition for Asset-I and Asset-II:

**Asset-I:**

| (₹ in lakh)                      |         |
|----------------------------------|---------|
| Particulars                      | Amount  |
| ACE during 2014-15               | 2062.81 |
| De capitalization during 2014-15 | -235.10 |



|                                  |         |
|----------------------------------|---------|
| ACE during 2015-16               | 379.33  |
| De capitalization during 2015-16 | -52.27  |
| ACE during 2016-17               | 4534.62 |
| De capitalization during 2016-17 | -644.48 |
| ACE during 2017-18               | 3765.25 |
| De capitalization during 2017-18 | -525.39 |
| ACE during 2018-19               | 428.30  |
| De capitalization during 2018-19 | -59.77  |

## Asset-II:

| (₹ in lakh)                      |         |
|----------------------------------|---------|
| Particulars                      | Amount  |
| ACE during 2014-15               | 900.92  |
| De capitalization during 2014-15 | -71.91  |
| ACE during 2015-16               | 389.24  |
| De capitalization during 2015-16 | -41.42  |
| De capitalization on 27.3.2016   | -181.50 |
| ACE during 2016-17               | 430.58  |
| De capitalization during 2016-17 | -32.79  |
| De capitalization on 7.5.2016    | -225.00 |
| De capitalization on 15.10.2016  | -225.00 |
| ACE during 2017-18               | 974.83  |
| De capitalization during 2017-18 | -143.89 |
| De capitalization on 4.6.2017    | -181.50 |
| ACE during 2018-19               | 643.37  |
| De capitalization during 2018-19 | -111.29 |

## De-capitalisation

26. As regards de-capitalisation of the ICTs, the Petitioner *vide* affidavit dated 27.7.2021 has submitted as follows:

- a) 7 number of ICTs from the instant project and 1 number from another project i.e. 315 MVA, 440/220 kV ICT-IV at Ballabgarh Sub-station with associated bay equipment were shifted to NRSS-XXXII. The Commission *vide* order dated 30.4.2021 in Petition No. 210/TT/2020 (true-up petition for ICT IV at Ballabgarh) also de-capitalized the associated bays of the ICT and directed to re-capitalize the same in NRSS-XXXII where it is being used with 500 MVA ICT.





In line with the direction of the Commission to re-capitalize bays where it is being used, all 7 numbers associated bays of ICT are also being de-capitalized in the instant petition and the same will be re-capitalized along with the true-up of transmission project under the NRSS-XXXII (i.e Petition No. 255/TT/2018 and Petition No. 116/TT/2017).

b) Further, the 4 numbers ICTs were de-capitalised one day prior to its re-use while filing the instant petition. However, in some of the recent orders, the Commission opined to de-capitalise the same on actual date of removal and to claim any carrying cost in project where it is being re-used. Accordingly, 7 numbers ICT and its bays are being de-capitalized on actual date of removal.

The details of ICTs and associated bays being de-capitalized are as follows:

(₹ in lakh)

| Replaced asset                        | COD        | COD of New 500 MVA ICT | Date/ Year of de-capitalisation | Original gross block | Accumulated depreciation as on date of de-capitalisation | Remarks  |
|---------------------------------------|------------|------------------------|---------------------------------|----------------------|--|--|
| 315 MVA ICT-I at Mandola              | 22.11.1990 | 28.3.2016              | 8.3.2016 (2015-16)              | 225.00               | 202.50   | Kept as Regional spare as discussed in RPC/SCM |
| Associated bays of ICT-I at Mandola   |            |                        |                                 | 28.32                | 25.49  | Will be re-capitalized in NRSS-XXXII           |
| 315 MVA ICT-II at Mandola             | 31.7.1991  | 16.10.2016             | 29.9.2016 (2016-17)             | 225.00               | 202.50   | Shifted to Rourkela under ERSS-XVII            |
| Associated bays of ICT-II at Mandola  |            |                        |                                 | 28.32                | 25.49  | Will be re-capitalized in NRSS-XXXII           |
| 315 MVA ICT-III at Mandola            | 31.10.1991 | 10.4.2016              | 29.3.2016 (2015-16)             | 225.00               | 202.50   | Kept as Regional spare as discussed in RPC/SCM |
| Associated bays of ICT-III at Mandola |            |                        |                                 | 28.32                | 25.49  | Will be re-capitalized in NRSS-XXXII           |



| Replaced asset                          | COD                     | COD of New 500 MVA ICT | Date/ Year of de-capitalisation | Original gross block | Accumulated depreciation as on date of de-capitalisation | Remarks  |
|---|-------------------------|------------------------|---------------------------------|----------------------|--|--|
| 315 MVA ICT-IV at Mandola               | 28.2.1992               | 8.5.2016               | 22.4.2016 (2016-17)             | 225.00               | 202.50   | Shifted to Rourkela under ERSS-XVII            |
| Associated bays of ICT-IV at Mandola    |                         |                        |                                 | 28.32                | 25.49  | Will be re-capitalized in NRSS-XXXII           |
| 315 MVA ICT-I at Ballbgarh              | 26.9.1988               | 28.3.2016              | 12.2.2016 (2015-16)             | 181.50               | 163.35   | Shifted to Agra under NRSS-XXXIV               |
| Associated bays of ICT-I at Ballbgarh   |                         |                        |                                 | 37.33                | 33.60  | Will be re-capitalized in NRSS-XXXII           |
| 315 MVA ICT-II at Ballbgarh             | 31.10.1989 or 31.3.1989 | 16.9.2016              | 8.8.2016 (2016-17)              | 167.32               | 150.59   | Kept as Regional spare as discussed in RPC/SCM |
| Associated bays of ICT-II at Ballbgarh  |                         |                        |                                 | 41.09                | 36.98  | Will be re-capitalized in NRSS-XXXII           |
| 315 MVA ICT-III at Ballbgarh            | 21.1.1991               | 5.6.2017               | 12.5.2017 (2017-18)             | 181.50               | 163.35   | Shifted to Kaithal under NRSS-XXXIV            |
| Associated bays of ICT-III at Ballbgarh |                         |                        |                                 | 37.33                | 33.60  | Will be re-capitalized in NRSS-XXXII           |

27. The Petitioner vide affidavit dated 27.7.2021 submitted revised Auditor's Certificated dated 16.7.2021 and claimed the revised ACE and decapitalisation for the 2014-19 tariff period pursuant to the Commission's direction vide order dated 20.6.2021 in Review Petition No. 22/RP/2019 and all 7 numbers ICTs have being de-capitalized by the Petitioner as follows:

#### Asset-I

(₹ in lakh)

| Particulars                      | Spillover of 2009-14 approved ACE | Approved ACE of 2014-19 | Total   |
|----------------------------------|-----------------------------------|-------------------------|---------|
| ACE during 2014-15               | 0.00                              | 2062.81                 | 2062.81 |
| De-capitalisation during 2014-15 | 0.00                              | 0.00                    | 0.00    |



| Particulars                      | Spillover of 2009-14 approved ACE | Approved ACE of 2014-19 | Total   |
|----------------------------------|-----------------------------------|-------------------------|---------|
| ACE during 2015-16               | 0.00                              | 379.33                  | 379.33  |
| De-capitalisation during 2015-16 | 0.00                              | 0.00                    | 0.00    |
| ACE during 2016-17               | 158.65                            | 4375.97                 | 4534.62 |
| De-capitalisation during 2016-17 | 0.00                              | -321.60                 | -321.60 |
| ACE during 2017-18               | 0.00                              | 3765.24                 | 3765.24 |
| De-capitalisation during 2017-18 | 0.00                              | -781.76                 | -781.76 |
| ACE during 2018-19               | 0.00                              | 428.30                  | 428.3   |
| De-capitalisation during 2018-19 | 0.00                              | -418.70                 | -418.70 |

#### Asset-II

(₹ in lakh)

| Particulars                      | Land payment | Spillover of 2009-14 approved ACE | Approved ACE of 2014-19 | De-cap of ICT and associated bays | Total   |
|----------------------------------|--------------|-----------------------------------|-------------------------|-----------------------------------|---------|
| ACE during 2014-15               | 15.69        | 582.41                            | 302.82                  | 0.00                              | 900.92  |
| De-capitalisation during 2014-15 | 0.00         | -42.38                            | -79.92                  | 0.00                              | -122.30 |
| ACE during 2015-16               | 0.00         | 206.24                            | 183.00                  | 0.00                              | 389.24  |
| De-capitalisation during 2015-16 | 0.00         | -14.13                            | -18.36                  | -725.47                           | -757.96 |
| ACE during 2016-17               | 140.52       | 39.53                             | 250.53                  | 0.00                              | 430.58  |
| De-capitalisation during 2016-17 | 0.00         | 0.00                              | -25.20                  | -715.05                           | -740.25 |
| ACE during 2017-18               | 101.94       | 0.00                              | 872.89                  | 0.00                              | 974.83  |
| De-capitalisation during 2017-18 | 0.00         | 0.00                              | -100.68                 | -218.83                           | -319.51 |
| ACE during 2018-19               | 0.00         | 0.00                              | 643.37                  | 0.00                              | 643.37  |
| De-capitalisation during 2018-19 | 0.00         | 0.00                              | -149.04                 | 0.00                              | -149.04 |

a) The Petitioner has submitted that the ACE of ₹15.69 lakh, ₹140.52 lakh and ₹101.94 lakh claimed during 2014-15, 2016-17 and 2017-18 respectively for Asset-II is on account of land enhancement payment and has been claimed in accordance with Regulation 14(3)(i) of the 2014 Tariff Regulations.

b) The ACE of ₹158.65 lakh during 2016-17 for Asset-I and ACE of ₹582.41 lakh, ₹206.24 lakh and ₹39.53 lakh during 2014-15, 2015-16 and 2016-17 for Asset-II is spillover of the ACE approved by the Commission *vide* order dated



28.1.2016 in Petition No. 133/TT/2015 during the 2009-14 tariff period on account of replacement of equipment and has been claimed under Regulation 14(3)(vii) and Regulation 14(3)(ix) of the 2014 Tariff Regulations.

c) Further, the remaining ACE of ₹11011.65 lakh and ₹2252.61 lakh for Asset-I and Asset-II respectively during the 2014-19 tariff period (i.e. apart from land enhancement payment and spillover of 2009-14) is on account of replacement of equipment and was admitted by the Commission vide order dated 28.1.2016 and approved by the Board of Directors of the Petitioner's Company in its 364th meeting held on 27.3.2019. The remaining ACE has been claimed in accordance with Regulation 14(3)(vii) and Regulation 14(3)(ix) of the 2014 Tariff Regulations.

d) The debt:equity ratio of 51.79:48.21 as on 31.3.2009 has been considered for de-capitalisation as follows:

**Asset-I: HVDC portion**

(₹ in lakh)

| Year    | De-capitalisation amount | Debt   | Equity | Cumulative repayment | Cumulative depreciation |
|---------|--------------------------|--------|--------|----------------------|-------------------------|
| 2014-15 | 0.00                     | 0.00   | 0.00   | 0.00                 | 0.00                    |
| 2015-16 | 0.00                     | 0.00   | 0.00   | 0.00                 | 0.00                    |
| 2016-17 | 321.60                   | 166.56 | 155.04 | 166.56               | 289.44                  |
| 2017-18 | 781.76                   | 404.87 | 376.89 | 404.87               | 703.58                  |
| 2018-19 | 418.70                   | 216.84 | 201.86 | 216.84               | 376.83                  |

**Asset-II: AC portion**

(₹ in lakh)

| Year    | De-capitalisation amount | Debt   | Equity | Cumulative Repayment | Cumulative Depreciation |
|---------|--------------------------|--------|--------|----------------------|-------------------------|
| 2014-15 | 122.30                   | 63.34  | 58.96  | 63.34                | 110.07                  |
| 2015-16 | 757.96                   | 392.55 | 365.41 | 392.55               | 682.16                  |
| 2016-17 | 740.25                   | 383.38 | 356.87 | 383.38               | 666.23                  |
| 2017-18 | 319.51                   | 165.47 | 154.04 | 165.47               | 287.56                  |
| 2018-19 | 149.04                   | 77.19  | 71.85  | 77.19                | 134.14                  |



28. We have considered the submissions made by the Petitioner. The date of de-capitalisation of equipment in the instant petition has been considered as per the Petitioner's submission *vide* affidavit dated 27.7.2021.

29. As regards Asset-I, the spillover ACE of ₹158.65 lakh approved in 2009-14 tariff order and fresh net ACE of ₹9489.60 lakh in case of Asset-I has been allowed under Regulation 14(3) (vii) and Regulation 14 (3)(ix) of the 2014 Tairff Regulations and the same is as follows:

**Asset-I**

| (₹ in lakh)                      |                                   |                         |         |
|----------------------------------|-----------------------------------|-------------------------|---------|
| Particulars                      | Spillover of 2009-14 approved ACE | Approved ACE of 2014-19 | Total   |
| ACE during 2014-15               | 0.00                              | 2062.81                 | 2062.81 |
| De-capitalisation during 2014-15 | 0.00                              | 0.00                    | 0.00    |
| ACE during 2015-16               | 0.00                              | 379.33                  | 379.33  |
| De-capitalisation during 2015-16 | 0.00                              | 0.00                    | 0.00    |
| ACE during 2016-17               | 158.65                            | 4375.97                 | 4534.62 |
| De-capitalisation during 2016-17 | 0.00                              | -321.60                 | -321.60 |
| ACE during 2017-18               | 0.00                              | 3765.24                 | 3765.24 |
| De-capitalisation during 2017-18 | 0.00                              | -781.76                 | -781.76 |
| ACE during 2018-19               | 0.00                              | 428.30                  | 428.3   |
| De-capitalisation during 2018-19 | 0.00                              | -418.70                 | -418.70 |

30. As Regards Asset-I, the ACE of ₹258.15 lakh is approved towards land enhancement payment under 14(3)(i) of 2014 tariff regulations, spillover net ACE of ₹771.67 lakh approved in 2009-14 tariff order and fresh net ACE of ₹1879.41 lakh in case of Asset-II has been allowed under Regulation 14(3) (vii) and Regulation 14(3)(ix) of the 2014 Tairff Regulations and the same is as follows:



**Asset-II**

(₹ in lakh)

| Particulars                      | Land payment | Spillover of 2009-14 approved ACE | Approved ACE of 2014-19 | De-cap of ICT and associated bays | Total   |
|----------------------------------|--------------|-----------------------------------|-------------------------|-----------------------------------|---------|
| ACE during 2014-15               | 15.69        | 582.41                            | 302.82                  | 0.00                              | 900.92  |
| De-capitalisation during 2014-15 | 0.00         | -42.38                            | -79.92                  | 0.00                              | -122.30 |
| ACE during 2015-16               | 0.00         | 206.24                            | 183.00                  | 0.00                              | 389.24  |
| De-capitalisation during 2015-16 | 0.00         | -14.13                            | -18.36                  | -725.47                           | -757.96 |
| ACE during 2016-17               | 140.52       | 39.53                             | 250.53                  | 0.00                              | 430.58  |
| De-capitalisation during 2016-17 | 0.00         | 0.00                              | -25.20                  | -715.05                           | -740.25 |
| ACE during 2017-18               | 101.94       | 0.00                              | 872.89                  | 0.00                              | 974.83  |
| De-capitalisation during 2017-18 | 0.00         | 0.00                              | -100.68                 | -218.83                           | -319.51 |
| ACE during 2018-19               | 0.00         | 0.00                              | 643.37                  | 0.00                              | 643.37  |
| De-capitalisation during 2018-19 | 0.00         | 0.00                              | -149.04                 | 0.00                              | -149.04 |

**Capital Cost for 2014-19 tariff period**

31. Accordingly, the details of the approved capital cost considered for truing up of tariff of the 2014-19 tariff period is as follows:

**Asset-I**

(₹ in lakh)

| Particulars                                  | Spillover of 2009-14 approved ACE | Approved ACE of 2014-19 | Total           |
|--|-----------------------------------|-------------------------|-----------------|
| <b>Capital Cost admitted as on 31.3.2014</b> |                                   |                         | <b>71193.91</b> |
| ACE during 2014-15                           | 0.00                              | 2062.81                 | 2062.81         |
| De-capitalisation during 2014-15             | 0.00                              | 0.00                    | 0.00            |
| ACE during 2015-16                           | 0.00                              | 379.33                  | 379.33          |
| De-capitalisation during 2015-16             | 0.00                              | 0.00                    | 0.00            |
| ACE during 2016-17                           | 158.65                            | 4375.97                 | 4534.62         |
| De-capitalisation during 2016-17             | 0.00                              | -321.60                 | -321.60         |
| ACE during 2017-18                           | 0.00                              | 3765.24                 | 3765.24         |
| De-capitalisation during 2017-18             | 0.00                              | -781.76                 | -781.76         |
| ACE during 2018-19                           | 0.00                              | 428.30                  | 428.3           |
| De-capitalisation during 2018-19             | 0.00                              | -418.70                 | -418.70         |
| <b>Capital Cost allowed as on 31.3.2019</b>  |                                   |                         | <b>80842.16</b> |



**Asset-II**

(₹ in lakh)

| Particulars                                 | Land payment | Spillover of 2009-14 approved ACE | Approved ACE of 2014-19 | De-cap of ICT and associated bays | Total           |
|---|--------------|-----------------------------------|-------------------------|-----------------------------------|-----------------|
| <b>Capital Cost allowed as on 31.3.2014</b> |              |                                   |                         |                                   | <b>58639.46</b> |
| ACE during 2014-15                          | 15.69        | 582.41                            | 302.82                  | 0.00                              | 900.92          |
| De-capitalisation during 2014-15            | 0.00         | -42.38                            | -79.92                  | 0.00                              | -122.30         |
| ACE during 2015-16                          | 0.00         | 206.24                            | 183.00                  | 0.00                              | 389.24          |
| De-capitalisation during 2015-16            | 0.00         | -14.13                            | -18.36                  | -725.47                           | -757.96         |
| ACE during 2016-17                          | 140.52       | 39.53                             | 250.53                  | 0.00                              | 430.58          |
| De-capitalisation during 2016-17            | 0.00         | 0.00                              | -25.20                  | -715.05                           | -740.25         |
| ACE during 2017-18                          | 101.94       | 0.00                              | 872.89                  | 0.00                              | 974.83          |
| De-capitalisation during 2017-18            | 0.00         | 0.00                              | -100.68                 | -218.83                           | -319.51         |
| ACE during 2018-19                          | 0.00         | 0.00                              | 643.37                  | 0.00                              | 643.37          |
| De-capitalisation during 2018-19            | 0.00         | 0.00                              | -149.04                 | 0.00                              | -149.04         |
| <b>Capital Cost allowed as on 31.3.2019</b> |              |                                   |                         |                                   | <b>59889.34</b> |

**Debt-Equity ratio**

32. The debt-equity ratio has been allowed in accordance with Regulation 19(3) of the 2014 Tariff Regulations. As per Regulation 19(3) of the 2014 Tariff Regulations, the debt:equity ratio allowed by the Commission for determination of tariff for the period ending on 31.3.2014 shall be considered. Accordingly, the debt-equity ratio for the period ending on 31.3.2014, considered for the purpose of determination of tariff of the 2014-19 tariff period has been considered for the purpose of truing up of the tariff of the transmission assets for the 2014-19 tariff period. The debt-equity ratio of 70:30 has been considered for ACE allowed during the 2014-19 period in accordance with Regulation 19(3) of the 2014 Tariff Regulations.

33. Further, the debt:equity ratio of 51.79:48.21 as on 31.3.2009 has been considered for proposed de-capitalisation for the 2014-19 tariff period. The details of



the debt-equity ratio as on 1.4.2014 and 31.3.2019 (considering ACE/ de-capitalisation) for the transmission assets is as follows :

**(A) Debt-equity of the capital cost as on 1.4.2014**

| Assets   | Funding      | Capital Cost as on 1.4.2014 (₹ in lakh) | (in %)        |
|----------|--------------|---|---------------|
| Asset-I  | Debt         | 36812.95                                | 51.71         |
|          | Equity       | 34380.96                                | 48.29         |
|          | <b>Total</b> | <b>71193.91</b>                         | <b>100.00</b> |
| Asset-II | Debt         | 30513.18                                | 52.04         |
|          | Equity       | 28126.29                                | 47.96         |
|          | <b>Total</b> | <b>58639.46</b>                         | <b>100.00</b> |

**(B) Debt-equity of ACE and de-capitalisation during the 2014-19 period**

**Asset-I**

| Particulars  | ACE                 |               | ACE                 |               | ACE                 |               | De-capitalisation   |               |
|--------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|
|              | 2014-15 (₹ in lakh) | (in %)        | 2015-16 (₹ in lakh) | (in %)        | 2016-17 (₹ in lakh) | (in %)        | 2016-17 (₹ in lakh) | (in %)        |
| Debt         | 1443.97             | 70.00         | 265.53              | 70.00         | 3174.23             | 70.00         | 166.56              | 51.79         |
| Equity       | 618.84              | 30.00         | 113.80              | 30.00         | 1360.39             | 30.00         | 155.04              | 48.21         |
| <b>Total</b> | <b>2062.81</b>      | <b>100.00</b> | <b>379.33</b>       | <b>100.00</b> | <b>4534.62</b>      | <b>100.00</b> | <b>321.60</b>       | <b>100.00</b> |

| Particulars  | ACE                 |               | De-capitalisation   |               | ACE                 |               | De-capitalisation   |               |
|--------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|
|              | 2017-18 (₹ in lakh) | (in %)        | 2017-18 (₹ in lakh) | (in %)        | 2018-19 (₹ in lakh) | (in %)        | 2018-19 (₹ in lakh) | (in %)        |
| Debt         | 2635.68             | 70.00         | 404.89              | 51.79         | 299.81              | 70.00         | 216.85              | 51.79         |
| Equity       | 1129.58             | 30.00         | 376.87              | 48.21         | 128.49              | 30.00         | 201.85              | 48.21         |
| <b>Total</b> | <b>3765.25</b>      | <b>100.00</b> | <b>781.76</b>       | <b>100.00</b> | <b>428.30</b>       | <b>100.00</b> | <b>418.70</b>       | <b>100.00</b> |

**Asset-II**

| Particulars  | ACE                 |               | De-capitalisation   |               | ACE                 |               | De-capitalisation   |               |
|--------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|
|              | 2014-15 (₹ in lakh) | (in %)        | 2014-15 (₹ in lakh) | (in %)        | 2015-16 (₹ in lakh) | (in %)        | 2015-16 (₹ in lakh) | (in %)        |
| Debt         | 630.64              | 70.00         | 63.34               | 51.79         | 272.47              | 70.00         | 392.55              | 51.79         |
| Equity       | 270.28              | 30.00         | 58.96               | 48.21         | 116.77              | 30.00         | 365.41              | 48.21         |
| <b>Total</b> | <b>900.92</b>       | <b>100.00</b> | <b>122.30</b>       | <b>100.00</b> | <b>389.24</b>       | <b>100.00</b> | <b>757.96</b>       | <b>100.00</b> |





| Particulars  | ACE                    |               | De-capitalisation      |               | ACE                    |               | De-capitalisation      |               |
|--------------|------------------------|---------------|------------------------|---------------|------------------------|---------------|------------------------|---------------|
|              | 2016-17<br>(₹ in lakh) | (in %)        | 2016-17<br>(₹ in lakh) | (in %)        | 2017-18<br>(₹ in lakh) | (in %)        | 2017-18<br>(₹ in lakh) | (in %)        |
| Debt         | 301.41                 | 70.00         | 383.38                 | 51.79         | 682.38                 | 70.00         | 165.47                 | 51.79         |
| Equity       | 129.17                 | 30.00         | 365.87                 | 48.21         | 292.45                 | 30.00         | 154.04                 | 48.21         |
| <b>Total</b> | <b>430.58</b>          | <b>100.00</b> | <b>740.25</b>          | <b>100.00</b> | <b>974.83</b>          | <b>100.00</b> | <b>319.51</b>          | <b>100.00</b> |

| Particulars  | ACE                    |               | De-capitalisation      |               |
|--------------|------------------------|---------------|------------------------|---------------|
|              | 2018-19<br>(₹ in lakh) | (in %)        | 2018-19<br>(₹ in lakh) | (in %)        |
| Debt         | 450.36                 | 70.00         | 77.19                  | 51.79         |
| Equity       | 193.01                 | 30.00         | 71.85                  | 48.21         |
| <b>Total</b> | <b>643.37</b>          | <b>100.00</b> | <b>149.04</b>          | <b>100.00</b> |

**(C) Debt-equity for capital cost as on 31.3.2019**

| Assets   | Funding      | Capital Cost as on<br>31.3.2019<br>(₹ in lakh) | (in %)        |
|----------|--------------|--|---------------|
| Asset-I  | Debt         | 43843.86                                       | 54.23         |
|          | Equity       | 36998.30                                       | 45.77         |
|          | <b>Total</b> | <b>80842.16</b>                                | <b>100.00</b> |
| Asset-II | Debt         | 31768.51                                       | 53.05         |
|          | Equity       | 28120.84                                       | 46.95         |
|          | <b>Total</b> | <b>59889.34</b>                                | <b>100.00</b> |

34. Accordingly, the details of the debt-equity ratio considered for truing up of tariff for the 2014-19 tariff period is as follows:

| Assets   | Funding      | Capital Cost as<br>on 1.4.2014<br>(₹ in lakh) | (in %)        | Capital Cost as<br>on 31.3.2019<br>(₹ in lakh) | (in %)        |
|----------|--------------|---|---------------|--|---------------|
| Asset-I  | Debt         | 36812.95                                      | 51.71         | 43843.86                                       | 54.23         |
|          | Equity       | 34380.96                                      | 48.29         | 36998.30                                       | 45.77         |
|          | <b>Total</b> | <b>71193.91</b>                               | <b>100.00</b> | <b>80842.16</b>                                | <b>100.00</b> |
| Asset-II | Debt         | 30513.18                                      | 52.04         | 31768.51                                       | 53.05         |
|          | Equity       | 28126.29                                      | 47.96         | 28120.84                                       | 46.95         |
|          | <b>Total</b> | <b>58639.46</b>                               | <b>100.00</b> | <b>59889.34</b>                                | <b>100.00</b> |

**Depreciation**

35. The depreciation has been allowed as per the methodology provided in Regulation 27 of the 2014 Tariff Regulations. Depreciation has been allowed considering capital expenditure as on 1.4.2014 and approved ACE during the 2014-19



tariff period. The Gross Block during the 2014-19 tariff period with regard to the transmission assets has been depreciated at Weighted Average Rate of Depreciation (WAROD) and working of WAROD is attached as Annexure-I and Annexure-II. WAROD has been worked out taking into account the depreciation rates of transmission assets as prescribed in the 2014 Tariff Regulations. The transmission assets has already completed 12 years of life before 1.4.2014. Therefore, depreciation has been calculated based on the remaining depreciable value to be recovered over the balance useful life.

36. Accordingly, the details of the trued up depreciation allowed for the transmission assets for the 2014-19 tariff period is as follows:

**Asset-I**

(₹ in lakh)

| Particulars  | 2014-15        | 2015-16        | 2016-17        | 2017-18        | 2018-19        |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Depreciation</b>  |                |                |                |                |                |
| Opening Gross Block  | 71193.91       | 73256.72       | 73636.05       | 77849.07       | 80832.56       |
| ACE  | 2062.81        | 379.33         | 4534.62        | 3765.25        | 428.30         |
| De-capitalisation  | 0.00           | 0.00           | -321.60        | -781.76        | -418.70        |
| Closing Gross Block  | 73256.72       | 73636.05       | 77849.07       | 80832.56       | 80842.16       |
| Average Gross Block  | 72225.32       | 73446.39       | 75742.56       | 79340.82       | 80837.36       |
| Freehold Land  | 399.06         | 399.06         | 399.06         | 399.06         | 399.06         |
| Weighted Average Rate of Depreciation (in %)                         | 1.69           | 1.91           | 2.40           | 3.40           | 4.18           |
| Aggregate Depreciable Value  | 64643.63       | 65742.59       | 67809.15       | 71047.58       | 72394.47       |
| Balance useful life of the asset at the beginning of the year (Year) | 7.00           | 6.00           | 5.00           | 4.00           | 3.00           |
| Elapsed life at the beginning of the year (Year)                     | 23.00          | 24.00          | 25.00          | 26.00          | 27.00          |
| <b>Depreciation during the year</b>                                  | <b>1218.34</b> | <b>1401.50</b> | <b>1814.81</b> | <b>2696.78</b> | <b>3380.27</b> |
| Cumulative depreciation at the end of year                           | 57333.60       | 58735.10       | 60260.47       | 62253.67       | 65257.10       |
| Remaining Depreciable Value at the end of year                       | 7310.03        | 7007.50        | 7548.68        | 8793.91        | 7137.37        |



**Asset-II**

(₹ in lakh)

| Particulars  | 2014-15  | 2015-16                              |                                     |                                     |                                     |
|--|----------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|  |          | 1.4.2015-<br>11.2.2016<br>(317 days) | 12.2.2016-<br>7.3.2016<br>(25 days) | 8.3.2016-<br>28.3.2016<br>(21 days) | 29.3.2016-<br>31.3.2016<br>(3 days) |
| <b>Depreciation</b>  |          |                                      |                                     |                                     |                                     |
| Opening Gross Block  | 58639.46 | 59418.08                             | 59199.25                            | 58945.93                            | 58692.61                            |
| ACE*   | 900.92   | 389.24                               | 389.24                              | 389.24                              | 389.24                              |
| De-capitalisation*   | 122.30   | 32.49                                | 32.49                               | 32.49                               | 32.49                               |
| Closing Gross Block  | 59418.08 | 59774.83                             | 59556.00                            | 59302.68                            | 59049.36                            |
| Average Gross Block  | 59028.77 | 59596.46                             | 59377.63                            | 59124.31                            | 58870.99                            |
| Freehold Land  | 330.66   | 338.50                               | 338.50                              | 338.50                              | 338.50                              |
| WAROD (in %)   | 1.65%    | 1.54%                                | 0.10%                               | 0.09%                               | 0.01%                               |
| Aggregate Depreciable Value  | 52828.30 | 53332.16                             | 53135.21                            | 52907.22                            | 52679.24                            |
| Balance useful life of the asset at the beginning of the year (Year) | 8        | 7                                    | 7                                   | 7                                   | 7                                   |
| Elapsed life at the beginning of the year (Year)                     | 22       | 23                                   | 23                                  | 23                                  | 23                                  |
| <b>Depreciation during the year</b>                                  | 974.39   | 919.90                               | 61.93                               | 51.26                               | 7.26                                |
| Cumulative depreciation at the beginning of year                     | 45033.19 | 45897.51                             | 46788.17                            | 46653.15                            | 46476.43                            |
| Remaining Depreciable Value at the end of year                       | 6930.79  | 6543.99                              | 6482.06                             | 6430.80                             | 6423.54                             |

(₹ in lakh)

| Particulars  | 2016-17                              |                                       |                                      |   | 2017-18                              |   | 2018-19  |
|--|--------------------------------------|---------------------------------------|--------------------------------------|---|--------------------------------------|---|----------|
|  | 1.4.2016 -<br>21.4.2016<br>(21 days) | 22.4.2016<br>- 7.8.2016<br>(108 days) | 8.8.2106 -<br>28.9.2016<br>(52 days) | 29.9.2016<br>-<br>31.3.2017<br>(184 days) | 1.4.2017 -<br>11.5.2017<br>(41 days) | 12.5.2017<br>-<br>31.3.2018<br>(324 days) |          |
| <b>Depreciation</b>  |                                      |                                       |                                      |   |                                      |   |          |
| Opening Gross Block  | 59049.36                             | 58796.04                              | 58587.63                             | 58334.31                                  | 58739.69                             | 58520.86                                  | 59395.01 |
| ACE*   | 430.58                               | 430.58                                | 430.58                               | 430.58                                    | 974.83                               | 974.83                                    | 643.37   |
| De-capitalisation*   | 25.20                                | 25.20                                 | 25.20                                | 25.20                                     | 100.68                               | 100.68                                    | 149.04   |
| Closing Gross Block  | 59454.74                             | 59201.42                              | 58993.01                             | 58739.69                                  | 59613.84                             | 59395.01                                  | 59889.34 |
| Average Gross Block  | 59252.05                             | 58998.73                              | 58790.32                             | 58537.00                                  | 59176.77                             | 58957.94                                  | 59642.18 |
| Freehold Land  | 408.76                               | 408.76                                | 408.76                               | 408.76                                    | 529.99                               | 529.99                                    | 580.96   |
| WAROD (in %)   | 0.11%                                | 0.54%                                 | 0.25%                                | 0.86%                                     | 0.23%                                | 1.78%                                     | 2.36%    |
| Aggregate Depreciable Value  | 52958.96                             | 52730.97                              | 52543.40                             | 52315.42                                  | 52782.10                             | 52585.15                                  | 53155.09 |
| Balance useful life of the asset at the beginning of the year (Year) | 6                                    | 6                                     | 6                                    | 6   | 5                                    | 5   | 4        |
| Elapsed life at the beginning of the year (Year)                     | 24                                   | 24                                    | 24                                   | 24  | 25                                   | 25  | 26       |
| <b>Depreciation during the year</b>                                  | 64.28                                | 317.28                                | 146.19                               | 501.61                                    | 138.46                               | 1050.73                                   | 1408.66  |
| Cumulative depreciation at the beginning of year                     | 46255.70                             | 46297.30                              | 46386.58                             | 46345.20                                  | 46618.82                             | 46666.67                                  | 47520.46 |



| Particulars                                    | 2016-17                        |                                 |                                |                                  | 2017-18                        |                                  | 2018-19 |
|--|--------------------------------|---------------------------------|--------------------------------|----------------------------------|--------------------------------|----------------------------------|---------|
|  | 1.4.2016 - 21.4.2016 (21 days) | 22.4.2016 - 7.8.2016 (108 days) | 8.8.2106 - 28.9.2016 (52 days) | 29.9.2016 - 31.3.2017 (184 days) | 1.4.2017 - 11.5.2017 (41 days) | 12.5.2017 - 31.3.2018 (324 days) |         |
| Remaining Depreciable Value at the end of year | 6661.66                        | 6344.39                         | 6198.20                        | 5696.59                          | 6115.42                        | 5064.69                          | 4360.12 |

\*The addition due to ACE and deletion due to de-capitalisation is throughout the year, the deapitalisation done on specific dates have ben adjusted as on date from the opening gross block.

37. The details of depreciation allowed vide order dated 28.1.2016 in Petition No. 133/TT/2015, depreciation claimed by the Petitioner and trued up in the instant order is as follows:

(₹ in lakh)

| Asset-I  |         |         |         |         |          |
|--|---------|---------|---------|---------|----------|
| Particulars  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19  |
| Depreciation approved vide order dated 28.1.2016 in Petition No. 133/TT/2015 | 1105.00 | 1127.48 | 2351.34 | 7114.72 | 12385.66 |
| Depreciation claimed by the Petitioner in the instant petition               | 1218.33 | 1401.51 | 1872.69 | 2858.21 | 3432.77  |
| Depreciation allowed after true-up in this order                             | 1218.34 | 1401.50 | 1814.81 | 2696.78 | 3380.27  |

(₹ in lakh)

| Asset-II   |         |         |         |         |         |
|--|---------|---------|---------|---------|---------|
| Particulars  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Depreciation approved vide order dated 28.1.2016 in Petition No. 133/TT/2015 | 1122.35 | 1301.55 | 1509.99 | 1634.20 | 1676.71 |
| Depreciation claimed by the Petitioner in the instant petition               | 1138.83 | 1282.09 | 1341.63 | 1425.14 | 1627.00 |
| Depreciation allowed after true-up in this order                             | 974.39  | 1040.36 | 1029.35 | 1189.19 | 1408.66 |

### **Interest on Loan ("IoL")**

38. IoL has been worked out in accordance with Regulation 26 of the 2014 Tariff Regulations. The Petitioner has claimed IoL based on actual interest rates for each year during the 2014-19 period. The Petitioner has considered the weighted average rate of IoL on the basis of prevailing rates as on 1.4.2014 for respective loans and has prayed



to consider the floating rate of interest applicable during the 2014-19 period, if any, during the truing-up of tariff.

39. We have considered the submissions of the Petitioner. Accordingly, IoL has been calculated based on actual interest rate submitted by the Petitioner, in accordance with Regulation 26 of the 2014 Tariff Regulations. The details of trued up IoL allowed in respect of the transmission assets are as follows:

**Asset-I**

(₹ in lakh)

| Particulars  | 2014-15      | 2015-16      | 2016-17      | 2017-18       | 2018-19      |
|--|--------------|--------------|--------------|---------------|--------------|
| Gross Normative Loan   | 36812.95     | 38256.92     | 38522.45     | 41530.12      | 43760.91     |
| Cumulative Repayments upto Previous Year                             | 36812.95     | 38031.29     | 38522.45     | 40170.70      | 42462.59     |
| Net Loan-Opening   | 0.00         | 225.63       | 0.00         | 1359.42       | 1298.32      |
| Additions  | 1443.97      | 265.53       | 3174.23      | 2635.68       | 299.81       |
| Decapitalisation   | 0.00         | 0.00         | -166.56      | -404.89       | -216.85      |
| Repayment during the year  | 1218.34      | 491.16       | 1814.81      | 2696.78       | 1381.28      |
| Adjustment of Cumulative Repayment Pertaining to decapitalised asset | 0.00         | 0.00         | 166.56       | 404.89        | 216.85       |
| Net Loan-Closing   | 225.63       | 0.00         | 1359.42      | 1298.32       | 216.85       |
| Average Loan   | 112.81       | 112.81       | 679.71       | 1328.87       | 757.59       |
| Weighted Average Rate of Interest on Loan (in %)                     | 8.9111       | 8.9111       | 8.1712       | 7.8900        | 7.8987       |
| <b>Interest on Loan</b>  | <b>10.05</b> | <b>10.05</b> | <b>55.54</b> | <b>104.85</b> | <b>59.84</b> |

**Asset-II**

(₹ in lakh)

| Particulars  | 2014-15  | 2015-16                          |                                 |                                 |                                 |
|--|----------|----------------------------------|---------------------------------|---------------------------------|---------------------------------|
|  |          | 1.4.2015-11.2.2016<br>(317 days) | 12.2.2016-7.3.2016<br>(25 days) | 8.3.2016-28.3.2016<br>(21 days) | 29.3.2016-31.3.2016<br>(3 days) |
| Gross Normative Loan   | 30513.18 | 31080.48                         | 30967.15                        | 30835.96                        | 30704.76                        |
| Cumulative Repayments upto Previous Year                       | 30513.18 | 31080.48                         | 30967.15                        | 30835.96                        | 30704.76                        |
| Net Loan-Opening   | 0.00     | 0.00                             | 0.00                            | 0.00                            | 0.00                            |
| Additions*   | 630.64   | 272.47                           | 272.47                          | 272.47                          | 272.47                          |
| Decapitalisation*  | 63.34    | 16.83                            | 16.83                           | 16.83                           | 16.83                           |
| Repayment during the year                                      | 630.65   | 272.47                           | 272.47                          | 272.47                          | 272.47                          |
| Adj. of Cumulative Repayment Pertaining to decapitalised asset | 63.34    | 16.83                            | 16.83                           | 16.83                           | 16.83                           |
| Net Loan-Closing   | 0.00     | 0.00                             | 0.00                            | 0.00                            | 0.00                            |
| Average Loan   | 0.00     | 0.00                             | 0.00                            | 0.00                            | 0.00                            |



| Particulars                                      | 2014-15 | 2015-16                          |                                 |                                 |                                 |
|--|---------|----------------------------------|---------------------------------|---------------------------------|---------------------------------|
|  |         | 1.4.2015-11.2.2016<br>(317 days) | 12.2.2016-7.3.2016<br>(25 days) | 8.3.2016-28.3.2016<br>(21 days) | 29.3.2016-31.3.2016<br>(3 days) |
| Weighted Average Rate of Interest on Loan (in %) | 8.5345% | 8.4432%                          | 8.4432%                         | 8.4432%                         | 8.4432%                         |
| <b>Interest on Loan</b>                          | 0.00    | 0.00                             | 0.00                            | 0.00                            | 0.00                            |

(₹ in lakh)

| Particulars  | 2016-17                           |                                    |                                   |                                     | 2017-18                           |                                     | 2018-19  |
|--|-----------------------------------|------------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-------------------------------------|----------|
|  | 1.4.2016 - 21.4.2016<br>(21 days) | 22.4.2016 - 7.8.2016<br>(108 days) | 8.8.2016 - 28.9.2016<br>(52 days) | 29.9.2016 - 31.3.2017<br>(184 days) | 1.4.2017 - 11.5.2017<br>(41 days) | 12.5.2017 - 31.3.2018<br>(324 days) |          |
| Gross Normative Loan   | 30960.41                          | 30829.21                           | 30721.28                          | 30590.08                            | 30878.44                          | 30765.10                            | 31395.34 |
| Cumulative Repayments upto Previous Year                       | 30960.41                          | 30829.21                           | 30721.28                          | 30590.08                            | 30878.44                          | 30765.10                            | 31395.34 |
| Net Loan-Opening   | 0.00                              | 0.00                               | 0.00                              | 0.00                                | 0.00                              | 0.00                                | 0.00     |
| Additions*   | 301.41                            | 301.41                             | 301.41                            | 301.41                              | 682.38                            | 682.38                              | 450.36   |
| Decapitalisation*  | 13.05                             | 13.05                              | 13.05                             | 13.05                               | 52.14                             | 52.14                               | 77.19    |
| Repayment during the year                                      | 301.40                            | 301.40                             | 301.40                            | 301.40                              | 682.38                            | 682.38                              | 450.36   |
| Adj. of Cumulative Repayment Pertaining to decapitalised asset | 13.05                             | 13.05                              | 13.05                             | 13.05                               | 52.14                             | 52.14                               | 77.19    |
| Net Loan-Closing   | 0.00                              | 0.00                               | 0.00                              | 0.00                                | 0.00                              | 0.00                                | 0.00     |
| Average Loan   | 0.00                              | 0.00                               | 0.00                              | 0.00                                | 0.00                              | 0.00                                | 0.00     |
| Weighted Average Rate of Interest on Loan (in %)               | 8.2517%                           | 8.2517%                            | 8.2517%                           | 8.2517%                             | 7.9597%                           | 7.9597%                             | 7.8584%  |
| <b>Interest on Loan</b>  | 0.00                              | 0.00                               | 0.00                              | 0.00                                | 0.00                              | 0.00                                | 0.00     |

*\*The addition due to ACE and deletion due to de-capitalisation is throughout the year, the decapitalisation done on specific dates have been adjusted as on date from the opening loan.*

40. The details of IoL allowed vide order dated 28.1.2016 in Petition No. 133/TT/2015, IoL claimed by the Petitioner and true up in the instant order is as follows:

(₹ in lakh)

| Asset-I   |         |         |         |         |         |
|---|---------|---------|---------|---------|---------|
| Particulars   | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| IoL approved vide order dated 28.1.2016 in Petition No. 133/TT/2015 | 0.00    | 0.00    | 217.06  | 892.29  | 1060.61 |
| IoL claimed by the Petitioner in the instant petition               | 10.05   | 10.05   | 53.18   | 93.91   | 42.61   |
| IoL allowed after true-up in this order                             | 10.05   | 10.05   | 55.54   | 104.85  | 59.84   |



| Asset-II   |         |         |         |         |         |
|--|---------|---------|---------|---------|---------|
| Particulars  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| IoL approved <i>vide</i> order dated 28.1.2016 in Petition No. 133/TT/2015 | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| IoL claimed by the Petitioner in the instant petition                      | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| IoL allowed after true-up in this order                                    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |

### **Return on Equity (RoE)**

41. The Petitioner is entitled for RoE for the transmission assets in terms of Regulation 24 and Regulation 25 of the 2014 Tariff Regulations. The Petitioner has submitted that they are liable to pay income tax at MAT rates and has claimed following effective tax rates for the 2014-19 tariff period:

| Year    | Claimed effective tax rate (in %) | Grossed up ROE)(in %)<br>[(Base Rate)/(1-t)] |
|---------|-----------------------------------|--|
| 2014-15 | 21.018                            | 19.625                                       |
| 2015-16 | 21.382                            | 19.715                                       |
| 2016-17 | 21.338                            | 19.705                                       |
| 2017-18 | 21.337                            | 19.705                                       |
| 2018-19 | 21.549                            | 19.758                                       |

42. We have considered the submissions of the Petitioner. The Commission *vide* order dated 27.4.2020 in Petition No. 274/TT/2019 had arrived at the effective tax rate for the Petitioner based on the notified MAT rates and the same is as follows:

| Year    | Notified MAT rates (in %)<br>(inclusive of surcharge & cess) | Effective tax (in %) |
|---------|--|----------------------|
| 2014-15 | 20.961   | 20.961               |
| 2015-16 | 21.342   | 21.342               |
| 2016-17 | 21.342   | 21.342               |
| 2017-18 | 21.342   | 21.342               |
| 2018-19 | 21.549   | 21.549               |

43. The same MAT rates as considered in order dated 27.4.2020 in Petition No. 274/TT/2019 are considered for the purpose of grossing up of rate of RoE for trueing up of tariff of the 2014-19 tariff period in terms of the provisions of the 2014 Tariff Regulations:



| Year    | Notified MAT rates (in %) (inclusive of surcharge & cess) | Base rate of RoE (in %) | Grossed up ROE (in %) [(Base Rate)/(1-t)] |
|---------|---|-------------------------|---|
| 2014-15 | 20.961  | 15.50                   | 19.610                                    |
| 2015-16 | 21.342  | 15.50                   | 19.705                                    |
| 2016-17 | 21.342  | 15.50                   | 19.705                                    |
| 2017-18 | 21.342  | 15.50                   | 19.705                                    |
| 2018-19 | 21.549  | 15.50                   | 19.758                                    |

44. Accordingly, the trued up RoE allowed for the transmission assets for 2014-19 tariff period is as follows:

#### Asset-I

(₹ in lakh)

| Particulars                         | 2014-15        | 2015-16        | 2016-17        | 2017-18        | 2018-19        |
|-------------------------------------|----------------|----------------|----------------|----------------|----------------|
| Opening Equity                      | 34380.96       | 34999.80       | 35113.60       | 36318.95       | 37071.66       |
| Additions due to ACE                | 618.84         | 113.80         | 1360.39        | 1129.58        | 128.49         |
| Deletion due to decapitalisation    | 0.00           | 0.00           | 155.04         | 376.87         | 201.85         |
| Closing Equity                      | 34999.80       | 35113.60       | 36318.95       | 37071.66       | 36998.30       |
| Average Equity                      | 34690.38       | 35056.70       | 35716.28       | 36695.30       | 37034.98       |
| Return on Equity (Base Rate) (in %) | 15.500         | 15.500         | 15.500         | 15.500         | 15.500         |
| MAT Rate for respective year (in %) | 20.961         | 21.342         | 21.342         | 21.342         | 21.549         |
| Rate of Return on Equity (in %)     | 19.610         | 19.705         | 19.705         | 19.705         | 19.758         |
| <b>Return on Equity</b>             | <b>6802.78</b> | <b>6907.92</b> | <b>7037.89</b> | <b>7230.81</b> | <b>7317.37</b> |

#### Asset-II

(₹ in lakh)

| Particulars                         | 2014-15        | 2015-16                       |                              |                              |                              |
|-------------------------------------|----------------|-------------------------------|------------------------------|------------------------------|------------------------------|
|                                     |                | 1.4.2015-11.2.2016 (317 days) | 12.2.2016-7.3.2016 (25 days) | 8.3.2016-28.3.2016 (21 days) | 29.3.2016-31.3.2016 (3 days) |
| Opening Equity                      | 28126.29       | 28337.61                      | 28232.11                     | 28109.98                     | 27987.86                     |
| Additions due to ACE*               | 270.28         | 116.77                        | 116.77                       | 116.77                       | 116.77                       |
| Deletion due to decapitalization*   | 58.96          | 15.66                         | 15.66                        | 15.66                        | 15.66                        |
| Closing Equity                      | 28337.61       | 28438.71                      | 28333.22                     | 28211.09                     | 28088.96                     |
| Average Equity                      | 28231.95       | 28388.16                      | 28282.66                     | 28160.54                     | 28038.41                     |
| Return on Equity (Base Rate) (in %) | 15.500         | 15.500                        | 15.500                       | 15.500                       | 15.500                       |
| MAT Rate for respective year (in %) | 20.961         | 21.342                        | 21.342                       | 21.342                       | 21.342                       |
| Rate of Return on Equity (in %)     | 19.610         | 19.705                        | 19.705                       | 19.705                       | 19.705                       |
| <b>Return on Equity</b>             | <b>5536.28</b> | <b>4844.98</b>                | <b>380.68</b>                | <b>318.39</b>                | <b>45.29</b>                 |





(₹ in lakh)

| Particulars                        | 2016-17                        |                                |                                |                                 | 2017-18                        |                                 | 2018-19        |
|------------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|----------------|
|                                    | 1.4.2016 - 21.4.2016 (21 days) | 22.4.2016- 7.8.2016 (108 days) | 8.8.2106 - 28.9.2016 (52 days) | 29.9.2016- 31.3.2017 (184 days) | 1.4.2017 - 11.5.2017 (41 days) | 12.5.2017- 31.3.2018 (324 days) |                |
| Opening Equity                     | 28088.96                       | 27966.84                       | 27866.36                       | 27744.24                        | 27861.26                       | 27755.77                        | 27999.68       |
| Additions due to ACE*              | 129.17                         | 129.17                         | 129.17                         | 129.17                          | 292.45                         | 292.45                          | 193.01         |
| Deletion due to de-capitalisation* | 12.15                          | 12.15                          | 12.15                          | 12.15                           | 48.54                          | 48.54                           | 71.85          |
| Closing Equity                     | 28205.99                       | 28083.86                       | 27983.39                       | 27861.26                        | 28105.18                       | 27999.68                        | 28120.84       |
| Average Equity                     | 28147.48                       | 28025.35                       | 27924.88                       | 27802.75                        | 27983.22                       | 27877.72                        | 28060.26       |
| Return on Equity (Base Rate) (%)   | 15.500                         | 15.500                         | 15.500                         | 15.500                          | 15.500                         | 15.500                          | 15.500         |
| MAT Rate for respective year (%)   | 21.342                         | 21.342                         | 21.342                         | 21.342                          | 21.342                         | 21.342                          | 21.549         |
| Rate of Return on Equity (%)       | 19.705                         | 19.705                         | 19.705                         | 19.705                          | 19.705                         | 19.705                          | 19.758         |
| <b>Return on Equity</b>            | <b>319.11</b>                  | <b>1634.02</b>                 | <b>783.93</b>                  | <b>2761.78</b>                  | <b>619.39</b>                  | <b>4876.25</b>                  | <b>5544.15</b> |

\*The addition due to ACE and deletion due to de-capitalisation is done throughout the year, while the deapitalisation done on specific dates have ben adjusted as on the date from the opening equity of that date.

45. The details of RoE allowed vide order dated 28.1.2016 in Petition No. 133/TT/2015, RoE claimed by the Petitioner and trued up in the instant order is as follows:

(₹ in lakh)

| Asset-I   |         |         |         |         |         |
|---|---------|---------|---------|---------|---------|
| Particulars   | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| RoE approved vide order dated 28.1.2016 in Petition No. 133/TT/2015 | 6751.08 | 6759.89 | 7068.87 | 8120.46 | 9102.88 |
| RoE claimed by the Petitioner in the instant petition               | 6803.13 | 6908.27 | 7038.25 | 7231.17 | 7317.36 |
| RoE allowed after true-up in this order                             | 6802.78 | 6907.92 | 7037.89 | 7230.81 | 7317.37 |

(₹ in lakh)

| Asset-II  |         |         |         |         |         |
|---|---------|---------|---------|---------|---------|
| Particulars   | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| RoE approved vide order dated 28.1.2016 in Petition No. 133/TT/2015 | 5537.79 | 5599.87 | 5660.54 | 5689.57 | 5697.91 |
| RoE claimed by the Petitioner in the instant petition               | 5536.57 | 5591.71 | 5512.78 | 5503.98 | 5544.14 |
| RoE allowed after true-up in this order                             | 5536.28 | 5589.33 | 5498.85 | 5495.64 | 5544.15 |



## Operation & Maintenance Expenses (“O&M Expenses”)

46. The Petitioner has claimed O&M Expenses under Regulation 29(3) of the 2014 Tariff Regulations in respect of the transmission assets as follows:

| <b>Asset-I</b>   |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>   | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| <b>Rihand-Dadri HVDC Bi-pole scheme</b>  |                |                |                |                |                |
| Number   | 1              | 1              | 1              | 1              | 1              |
| Norms (₹ in lakh)  | 1511.00        | 1637.00        | 1774.00        | 1922.00        | 2082.00        |
| <b>Sub-total HVDC O&amp;M Expenses (₹ in lakh)</b>                                     | <b>1511.00</b> | <b>1637.00</b> | <b>1774.00</b> | <b>1922.00</b> | <b>2082.00</b> |
| <b>Line: Rihand-Dadri HVDC (S/C-Bundle Conductor with four sub-conductors)</b>         |                |                |                |                |                |
| Line Length (km)   | 815            | 815            | 815            | 815            | 815            |
| Norms (₹ lakh/km)  | 0.606          | 0.627          | 0.647          | 0.669          | 0.691          |
| <b>Line: Dadri-Dankaur &amp; Dadri-Chapki 132 kV lines (S/C-Twin/Triple Conductor)</b> |                |                |                |                |                |
| Line Length (km)   | 52             | 52             | 52             | 52             | 52             |
| Norms (₹ lakh/km)  | 0.404          | 0.418          | 0.432          | 0.446          | 0.461          |
| <b>Sub-total transmission line O&amp;M Expenses (₹ in lakh)</b>                        | <b>886.54</b>  | <b>915.79</b>  | <b>945.86</b>  | <b>977.56</b>  | <b>1010.12</b> |
| <b>Total O&amp;M Expenses (₹ in lakh)</b>  | <b>2397.53</b> | <b>2552.80</b> | <b>2719.86</b> | <b>2899.57</b> | <b>3092.13</b> |

| <b>Asset-II</b>   |                |                |                |                |                |
|---|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>  | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| <b>Sub-station Bays (400 kV)</b>  |                |                |                |                |                |
| Number (*)  | 23             | 23             | 23             | 23             | 23             |
| Norms (₹ in lakh)   | 60.30          | 62.30          | 64.37          | 66.51          | 68.71          |
| <b>Sub-total sub-station O&amp;M Expenses (₹ in lakh)</b>   | <b>1386.90</b> | <b>1432.90</b> | <b>1480.51</b> | <b>1529.73</b> | <b>1580.33</b> |
| <b>Pro-rata O&amp;M for 7 numbers ICT bays upto their respective dates of decapitalisation (*)</b>  | <b>422.10</b>  | <b>423.67</b>  | <b>123.27</b>  | <b>7.65</b>    | <b>0.00</b>    |
| <b>Line: Ballabgarh-Dadri (53.40 km) &amp; Dadri-Mandola (46.30 km) 400 kV D/C lines (D/C-Bundle Conductor with four sub-conductors)</b>  |                |                |                |                |                |
| Line Length (km)  | 99.70          | 99.70          | 99.70          | 99.70          | 99.70          |
| Norms (₹ lakh/km)   | 1.062          | 1.097          | 1.133          | 1.171          | 1.210          |
| <b>Line: (1) Rihand-Singrauli-I (42.03 km), (2) Singrauli-Rihand-II (43.95 km), (3) Vindhyachal-Kanpur-II (398 km), (4) Kanpur-Ballabgarh (380.996 km), (5) Ballabgarh-Jaipur (226 km), (6) Dadri-Malerkotla (297.22 km), (7) Bassi-Heerapura-I (47.76 km) &amp; (8) Bassi-Heerapura-II (48.99 km) 400 kV S/C lines (S/C-Twin/Triple Conductor)</b> |                |                |                |                |                |
| Line Length (km)  | 1484.95        | 1484.95        | 1484.95        | 1484.95        | 1484.95        |
| Norms (₹ lakh/km)   | 0.404          | 0.418          | 0.432          | 0.446          | 0.461          |
| <b>Sub-total transmission line O&amp;M Expenses (₹ in lakh)</b>   | <b>705.80</b>  | <b>730.08</b>  | <b>754.46</b>  | <b>770.03</b>  | <b>805.20</b>  |
| <b>Total O&amp;M Expenses (₹ in lakh)</b>   | <b>2514.80</b> | <b>2586.65</b> | <b>2358.24</b> | <b>2316.42</b> | <b>2385.53</b> |



(\*) The Commission allowed 30 nos. bays in order dated 28.1.2016 in Petition No. 133/TT/2015 for 2014-19 tariff period out of which 7 nos. ICT bays have been decapitalised till respective operational dates in respect of Asset-II.

47. Further, the Petitioner has submitted that for the 7 numbers ICTs that are being de-capitalised in the instant petition, the O&M Expenses of these associated bays is being claimed only upto date of de-capitalisation and O&M Expenses of associated bays of ICT will be claimed with 500 MVA ICTs in the true-up of NRSS-XXXII. Accordingly, the pro-rata O&M Expenses for 7 numbers ICT bays claimed by the Petitioner as follows:

| (₹ in lakh)                            |                  |               |               |               |             |             |
|--|------------------|---------------|---------------|---------------|-------------|-------------|
| Element                                | Operational till | 2014-15       | 2015-16       | 2016-17       | 2017-18     | 2018-19     |
| Ballabgarh ICT-I bay                   | 12.2.2016        | 60.30         | 54.13         | 0.00          | 0.00        | 0.00        |
| Ballabgarh ICT-II bay                  | 8.8.2016         | 60.30         | 62.30         | 22.93         | 0.00        | 0.00        |
| Ballabgarh ICT-III bay                 | 12.5.2017        | 60.30         | 62.30         | 64.37         | 7.65        | 0.00        |
| Mandola: ICT-I bay                     | 8.3.2016         | 60.30         | 58.38         | 0.00          | 0.00        | 0.00        |
| Mandola: ICT-II bay                    | 29.9.2016        | 60.30         | 62.30         | 32.10         | 0.00        | 0.00        |
| Mandola: ICT-III bay                   | 29.3.2016        | 60.30         | 61.96         | 0.00          | 0.00        | 0.00        |
| <b>Total pro-rata O&amp;M Expenses</b> |                  | <b>422.10</b> | <b>423.67</b> | <b>123.27</b> | <b>7.65</b> | <b>0.00</b> |

48. We have considered the submissions of the Petitioner. The trued up O&M Expenses allowed for the transmission assets under Regulation 29(3) of the 2014 Tariff Regulations are as follows:

| Asset-I  |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| Particulars  | 2014-15        | 2015-16        | 2016-17        | 2017-18        | 2018-19        |
| <b>Rihand-Dadri HVDC Bi-pole scheme</b>  |                |                |                |                |                |
| Number   | 1              | 1              | 1              | 1              | 1              |
| Norms (₹ in lakh)  | 1511.00        | 1637.00        | 1774.00        | 1922.00        | 2082.00        |
| <b>Sub-total HVDC O&amp;M Expenses (₹ in lakh)</b>                                     | <b>1511.00</b> | <b>1637.00</b> | <b>1774.00</b> | <b>1922.00</b> | <b>2082.00</b> |
| <b>Line: Rihand-Dadri HVDC (S/C-Bundle Conductor with four sub-conductors)</b>         |                |                |                |                |                |
| Line Length (km)   | 815            | 815            | 815            | 815            | 815            |
| Norms (₹ lakh/km)  | 0.606          | 0.627          | 0.647          | 0.669          | 0.691          |
| <b>Line: Dadri-Dankaur &amp; Dadri-Chapki 132 kV lines (S/C-Twin/Triple Conductor)</b> |                |                |                |                |                |
| Line Length (km)   | 52             | 52             | 52             | 52             | 52             |
| Norms (₹ lakh/km)  | 0.404          | 0.418          | 0.432          | 0.446          | 0.461          |
| <b>Sub-total transmission line O&amp;M Expenses (₹ in lakh)</b>                        | <b>886.54</b>  | <b>915.79</b>  | <b>945.86</b>  | <b>977.56</b>  | <b>1010.12</b> |
| <b>Total O&amp;M Expenses (₹ in lakh)</b>  | <b>2397.53</b> | <b>2552.80</b> | <b>2719.86</b> | <b>2899.57</b> | <b>3092.13</b> |



| Asset-II   |                 |                 |                 |                 |                 |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Particulars  | 2014-15         | 2015-16         | 2016-17         | 2017-18         | 2018-19         |
| <b>Sub-station Bays (400 kV)</b>   |                 |                 |                 |                 |                 |
| Number   | 23              | 23              | 23              | 23              | 23              |
| Norms (₹ in lakh)  | 60.30           | 62.30           | 64.37           | 66.51           | 68.71           |
| <b>Sub-total sub-station O&amp;M Expenses (₹ in lakh)</b>  | <b>1,386.90</b> | <b>1,432.90</b> | <b>1,480.51</b> | <b>1,529.73</b> | <b>1,580.33</b> |
| <b>Pro-rata O&amp;M for 7 numbers ICT bays upto their respective dates of decapitalisation</b>   | <b>422.10</b>   | <b>423.67</b>   | <b>123.27</b>   | <b>7.65</b>     | <b>0.00</b>     |
| <b>Line: Ballabgarh-Dadri (53.40 km) &amp; Dadri-Mandola (46.30 km) 400 kV D/C lines (D/C-Bundle Conductor with four sub-conductors)</b>   |                 |                 |                 |                 |                 |
| Line Length (km)   | 99.70           | 99.70           | 99.70           | 99.70           | 99.70           |
| Norms (₹ lakh/km)  | 1.062           | 1.097           | 1.133           | 1.171           | 1.210           |
| <b>Line: (1) Rihand-Singrauli-I (42.03 km), (2) Singrauli-Rihand-II (43.95 km), (3) Vindhychal-Kanpur-II (398 km), (4) Kanpur-Ballabgarh (380.996 km), (5) Ballabgarh-Jaipur (226 km), (6) Dadri-Malerkotla (297.22 km), (7) Bassi-Heerapura-I (47.76 km) &amp; (8) Bassi-Heerapura-II (48.99 km) 400 kV S/C lines (S/C-Twin/Triple Conductor)</b> |                 |                 |                 |                 |                 |
| Line Length (km)   | 1484.95         | 1484.95         | 1484.95         | 1484.95         | 1484.95         |
| Norms (₹ lakh/km)  | 0.404           | 0.418           | 0.432           | 0.446           | 0.461           |
| <b>Sub-total transmission line O&amp;M Expenses (₹ in lakh)</b>  | <b>705.80</b>   | <b>730.08</b>   | <b>754.46</b>   | <b>770.03</b>   | <b>805.20</b>   |
| <b>Total O&amp;M Expenses (₹ in lakh)</b>  | <b>2514.80</b>  | <b>2586.65</b>  | <b>2358.24</b>  | <b>2316.42</b>  | <b>2385.53</b>  |

49. Accordingly, the details of O&M Expenses approved *vide* order dated 28.1.2016 in Petition No. 133/TT/2015, O&M Expenses claimed by the Petitioner and trued up in the instant order is as follows:

| Asset-I   |         |         |         |         |         |
|---|---------|---------|---------|---------|---------|
| Particulars   | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| O&M Expenses approved <i>vide</i> order dated 28.1.2016 in Petition No. 133/TT/2015 | 2397.54 | 2552.79 | 2719.86 | 2899.56 | 3092.12 |
| O&M Expenses claimed by the Petitioner in the instant petition                      | 2397.53 | 2552.80 | 2719.86 | 2899.57 | 3092.13 |
| O&M Expenses allowed after true-up in this order                                    | 2397.54 | 2552.79 | 2719.86 | 2899.56 | 3092.12 |

| Asset-II  |         |         |         |         |         |
|---|---------|---------|---------|---------|---------|
| Particulars   | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| O&M Expenses approved <i>vide</i> order dated 28.1.2016 in Petition No. 133/TT/2015 | 2514.80 | 2599.08 | 2685.56 | 2774.33 | 2866.50 |
| O&M Expenses claimed by the Petitioner in the instant petition                      | 2514.80 | 2586.65 | 2358.25 | 2316.42 | 2385.53 |



| Asset-II   |         |         |         |         |         |
|--|---------|---------|---------|---------|---------|
| Particulars                                      | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| O&M Expenses allowed after true-up in this order | 2514.80 | 2586.65 | 2358.24 | 2316.42 | 2385.53 |

### Interest on Working Capital (“IWC”)

50. The Petitioner is entitled to claim IWC as per Regulation 28(1)(c) of the 2014 Tariff Regulations. Accordingly, IWC allowed in respect of the transmission assets are as follows:

#### Asset-I

| (₹ in lakh) |  |                |                |                |                |                |
|-------------|--|----------------|----------------|----------------|----------------|----------------|
|             | Particulars  | 2014-15        | 2015-16        | 2016-17        | 2017-18        | 2018-19        |
| A           | Working Capital for O&M Expenses (one month of O&M expenses)                         | 199.79         | 212.73         | 226.65         | 241.63         | 257.68         |
| B           | Working Capital for Maintenance Spares (Maintenance Spares @15% of O&M expenses)     | 359.63         | 382.92         | 407.98         | 434.93         | 463.82         |
| C           | Working Capital for Receivables (Receivables equivalent to two months of fixed cost) | 1791.00        | 1867.46        | 1997.23        | 2220.52        | 2378.01        |
| <b>D</b>    | <b>Total of Working Capital (A+B+C)</b>  | <b>2350.43</b> | <b>2463.12</b> | <b>2631.87</b> | <b>2897.08</b> | <b>3099.50</b> |
| E           | Rate of Interest (in %)  | 13.50          | 13.50          | 13.50          | 13.50          | 13.50          |
| <b>F</b>    | <b>Interest of working Capital (DxE)</b>   | <b>317.31</b>  | <b>332.52</b>  | <b>355.30</b>  | <b>391.11</b>  | <b>418.43</b>  |

#### Asset-II

| (₹ in lakh) |  |                |                               |                              |                              |                              |
|-------------|--|----------------|-------------------------------|------------------------------|------------------------------|------------------------------|
|             | Particulars  | 2014-15        | 2015-16                       |                              |                              |                              |
|             |  |                | 1.4.2015-11.2.2016 (317 days) | 12.2.2016-7.3.2016 (25 days) | 8.3.2016-28.3.2016 (21 days) | 29.3.2016-31.3.2016 (3 days) |
| A           | Working Capital for O&M Expenses (one month of O&M expenses)                         | 209.57         | 215.55                        | 215.55                       | 215.55                       | 215.55                       |
| B           | Working Capital for Maintenance Spares (Maintenance Spares @15% of O&M expenses)     | 377.22         | 388.00                        | 388.00                       | 388.00                       | 388.00                       |
| C           | Working Capital for Receivables (Receivables equivalent to two months of fixed cost) | 1552.38        | 1589.79                       | 1559.75                      | 1553.39                      | 1548.03                      |
| <b>D</b>    | <b>Total of Working Capital (A+B+C)</b>  | <b>2139.16</b> | <b>2193.34</b>                | <b>2163.31</b>               | <b>2156.94</b>               | <b>2151.59</b>               |
| E           | Rate of Interest (in %)  | 13.50%         | 13.50%                        | 13.50%                       | 13.50%                       | 13.50%                       |
| <b>F</b>    | <b>Interest of working Capital (DxE)</b>   | <b>288.79</b>  | <b>256.46</b>                 | <b>19.95</b>                 | <b>16.71</b>                 | <b>2.38</b>                  |



(₹ in lakh)

|          | Particulars  | 2016-17                              |                                      |                                      |                                       |
|----------|--|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
|          |  | 1.4.2016 -<br>21.4.2016<br>(21 days) | 22.4.2016-<br>7.8.2016<br>(108 days) | 8.8.2016 -<br>28.9.2016<br>(52 days) | 29.9.2016-<br>31.3.2017<br>(184 days) |
| A        | Working Capital for O&M Expenses (one month of O&M expenses)                         | 196.52                               | 196.52                               | 196.52                               | 196.52                                |
| B        | Working Capital for Maintenance Spares (Maintenance Spares @15% of O&M expenses)     | 353.74                               | 353.74                               | 353.74                               | 353.74                                |
| C        | Working Capital for Receivables (Receivables equivalent to two months of fixed cost) | 1550.93                              | 1539.16                              | 1527.92                              | 1518.52                               |
| <b>D</b> | <b>Total of Working Capital (A+B+C)</b>  | 2101.18                              | 2089.42                              | 2078.18                              | 2068.77                               |
| E        | Rate of Interest (in %)  | 13.50%                               | 13.50%                               | 13.50%                               | 13.50%                                |
| <b>F</b> | <b>Interest of working Capital (DxE)</b>   | 16.32                                | 83.46                                | 39.97                                | 140.79                                |

(₹ in lakh)

|          | Particulars  | 2017-18                              |                                       | 2018-19 |
|----------|--|--------------------------------------|---------------------------------------|---------|
|          |  | 1.4.2017 -<br>11.5.2017<br>(41 days) | 12.5.2017-<br>31.3.2018<br>(324 days) |         |
| A        | Working Capital for O&M Expenses (one month of O&M expenses)                         | 193.03                               | 193.03                                | 198.79  |
| B        | Working Capital for Maintenance Spares (Maintenance Spares @15% of O&M expenses)     | 347.46                               | 347.46                                | 357.83  |
| C        | Working Capital for Receivables (Receivables equivalent to two months of fixed cost) | 1557.74                              | 1545.85                               | 1605.03 |
| <b>D</b> | <b>Total of Working Capital (A+B+C)</b>  | 2098.24                              | 2086.34                               | 2161.65 |
| E        | Rate of Interest (in %)  | 13.50%                               | 13.50%                                | 13.50%  |
| <b>F</b> | <b>Interest of working Capital (DxE)</b>   | 31.82                                | 250.02                                | 291.82  |

51. The details of IWC approved *vide* order dated 28.1.2016 in Petition No. 133/TT/2015, IWC claimed by the Petitioner and trued up in the instant order is as follows:

(₹ in lakh)

| Particulars  | Asset-I |         |         |         |         |
|--|---------|---------|---------|---------|---------|
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Interest on Working Capital approved <i>vide</i> order dated 28.1.2016 in Petition No. 133/TT/2015 | 313.27  | 322.56  | 372.07  | 531.39  | 689.84  |
| Interest on Working Capital claimed by the Petitioner in the instant petition                      | 317.31  | 332.53  | 356.59  | 394.58  | 419.25  |
| Interest on Working Capital allowed after true-up in this order                                    | 317.31  | 332.52  | 355.30  | 391.11  | 418.43  |



(₹ in lakh)

| <b>Asset-II</b>  |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>   | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> | <b>2017-18</b> | <b>2018-19</b> |
| Interest on Working Capital approved <i>vide</i> order dated 28.1.2016 in Petition No. 133/TT/2015 | 292.22         | 302.42         | 313.40         | 321.83         | 328.09         |
| Interest on Working Capital claimed by the Petitioner in the instant petition                      | 292.58         | 301.06         | 295.46         | 290.71         | 296.85         |
| Interest on Working Capital allowed after true-up in this order                                    | 288.79         | 295.50         | 280.54         | 281.84         | 291.82         |

### **Approved Annual Fixed Charges (“AFC”) for the 2014-19 Tariff Period**

52. The trued up annual fixed charges approved for the instant transmission assets for the 2014-19 tariff period are as follows:-

#### **Asset-I**

(₹ in lakh)

| <b>Particulars</b>          | <b>2014-15</b>  | <b>2015-16</b>  | <b>2016-17</b>  | <b>2017-18</b>  | <b>2018-19</b>  |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Depreciation                | 1218.34         | 1401.50         | 1814.81         | 2696.78         | 3380.27         |
| Interest on Loan            | 10.05           | 10.05           | 55.54           | 104.85          | 59.84           |
| Return on Equity            | 6802.78         | 6907.92         | 7037.89         | 7230.81         | 7317.37         |
| O&M Expenses                | 2397.54         | 2552.79         | 2719.86         | 2899.56         | 3092.12         |
| Interest on Working Capital | 317.31          | 332.52          | 355.30          | 391.11          | 418.43          |
| <b>Total</b>                | <b>10746.02</b> | <b>11204.79</b> | <b>11983.40</b> | <b>13323.10</b> | <b>14268.03</b> |

#### **Asset-II**

(₹ in lakh)

| <b>Particulars</b>          | <b>2014-15</b> | <b>2015-16</b>                       |                                     |                                     |                                       |
|-----------------------------|----------------|--------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|
|                             |                | <b>1.4.2015-11.2.2016 (317 days)</b> | <b>12.2.2016-7.3.2016 (25 days)</b> | <b>8.3.2016-28.3.2016 (21 days)</b> | <b>29.3.2016 - 31.3.2016 (3 days)</b> |
| Depreciation                | 974.39         | 919.90                               | 61.93                               | 51.26                               | 7.26                                  |
| Interest on Loan            | 0.00           | 0.00                                 | 0.00                                | 0.00                                | 0.00                                  |
| Return on Equity            | 5536.28        | 4844.98                              | 380.68                              | 318.39                              | 45.29                                 |
| Interest on Working Capital | 288.79         | 256.46                               | 19.95                               | 16.71                               | 2.38                                  |
| O&M Expenses                | 2514.80        | 2240.35                              | 176.68                              | 148.41                              | 21.20                                 |
| <b>Total</b>                | <b>9314.26</b> | <b>8261.69</b>                       | <b>639.24</b>                       | <b>534.77</b>                       | <b>76.13</b>                          |

(₹ in lakh)

| <b>Particulars</b> | <b>2016-17</b>                        |                                      |                                       |                                       |
|--------------------|---------------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|
|                    | <b>1.4.2016 - 21.4.2016 (21 days)</b> | <b>22.4.2016-7.8.2016 (108 days)</b> | <b>8.8.2016 - 28.9.2016 (52 days)</b> | <b>29.9.2016-31.3.2017 (184 days)</b> |
| Depreciation       | 64.28                                 | 317.28                               | 146.19                                | 501.61                                |
| Interest on Loan   | 0.00                                  | 0.00                                 | 0.00                                  | 0.00                                  |



| Particulars                 | 2016-17                              |                                      |                                      |                                       |
|-----------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
|                             | 1.4.2016 -<br>21.4.2016<br>(21 days) | 22.4.2016-<br>7.8.2016<br>(108 days) | 8.8.2106 -<br>28.9.2016<br>(52 days) | 29.9.2016-<br>31.3.2017<br>(184 days) |
| Return on Equity            | 319.11                               | 1634.02                              | 783.93                               | 2761.78                               |
| O&M Expenses                | 16.32                                | 83.46                                | 39.97                                | 140.79                                |
| Interest on Working Capital | 135.68                               | 697.78                               | 335.97                               | 1188.81                               |
| <b>Total</b>                | <b>535.39</b>                        | <b>2732.54</b>                       | <b>1306.06</b>                       | <b>4592.99</b>                        |

(₹ in lakh)

| Particulars                 | 2017-18                          |                                       | 2018-19        |
|-----------------------------|----------------------------------|---------------------------------------|----------------|
|                             | 1.4.2017 -11.5.2017<br>(41 days) | 12.5.2018-<br>31.3.2018<br>(324 days) |                |
| Depreciation                | 138.46                           | 1050.73                               | 1408.66        |
| Interest on Loan            | 0.00                             | 0.00                                  | 0.00           |
| Return on Equity            | 619.39                           | 4876.25                               | 5544.15        |
| O&M Expenses                | 31.82                            | 250.02                                | 291.82         |
| Interest on Working Capital | 260.20                           | 2056.22                               | 2385.53        |
| <b>Total</b>                | <b>1049.87</b>                   | <b>8233.22</b>                        | <b>9630.15</b> |

53. Accordingly, the details of Annual Transmission Charges approved *vide* order dated 28.1.2016 in Petition No. 133/TT/2015, claimed by the Petitioner and trued up in the instant order is as follows:

(₹ in lakh)

| Asset-I  |          |          |          |          |          |
|--|----------|----------|----------|----------|----------|
| Particulars  | 2014-15  | 2015-16  | 2016-17  | 2017-18  | 2018-19  |
| AFC approved <i>vide</i> order dated 28.1.2016 in Petition No. 133/TT/2015 | 10566.88 | 10762.72 | 12729.20 | 19558.41 | 26331.11 |
| AFC claimed by the Petitioner in the instant petition                      | 10746.35 | 11205.16 | 12040.57 | 13477.44 | 14304.12 |
| AFC allowed after true-up in this order                                    | 10746.02 | 11204.79 | 11983.40 | 13323.10 | 14268.03 |

(₹ in lakh)

| Asset-II   |         |         |          |          |          |
|--|---------|---------|----------|----------|----------|
| Particulars  | 2014-15 | 2015-16 | 2016-17  | 2017-18  | 2018-19  |
| AFC approved <i>vide</i> order dated 28.1.2016 in Petition No. 133/TT/2015 | 9467.15 | 9802.92 | 10169.49 | 10419.94 | 10569.21 |
| AFC claimed by the Petitioner in the instant petition                      | 9482.78 | 9761.51 | 9508.12  | 9536.25  | 9853.52  |
| AFC allowed after true-up in this order                                    | 9314.26 | 9511.84 | 9166.98  | 9283.09  | 9630.15  |





## DETERMINATION OF ANNUAL FIXED CHARGES FOR 2019-24 TARIFF PERIOD

54. Regulation 8(1) (i) of the 2019 Tariff Regulations provides as follows:

**“8. Tariff determination**

(1) Tariff in respect of a generating station and emission control system, wherever applicable, may be determined for the whole of the generating station or unit thereof, and tariff in respect of a transmission system may be determined for the whole of the transmission system or element thereof or associated communication system:

Provided that:

(i) In case of commercial operation of all the units of a generating station or all elements of a transmission system prior to 1.4.2019, the generating company or the transmission licensee, as the case may be, shall file consolidated petition in respect of the entire generating station or transmission system for the purpose of determination of tariff for the period 1.4.2019 to 31.3.2024.”

55. Thus, the Regulation provides for clubbing of all the assets covered under the entire transmission project. However, the issue has already been deliberated under relevant paragraph of this order for 2014-19 tariff period and it has been held that keeping the assets in two groups of HVDC portion and AC portion is as per the requirement of the 2010 Sharing Regulations. Accordingly, transmission tariff is being calculated separately during 2019-24 tariff period also.

56. The Petitioner vide affidavit dated 27.7.2021 has revised its submission and has claimed the following transmission charges for the 2019-24 tariff period:

(₹ in lakh)

| Asset-I                     |                 |                 |                 |                 |                 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Particulars                 | 2019-20         | 2020-21         | 2021-22         | 2022-23         | 2023-24         |
| Depreciation                | 4498.32         | 10541.58        | 3549.08         | 5959.87         | 5959.86         |
| Interest on Loan            | 0.00            | 0.00            | 546.88          | 873.92          | 439.47          |
| Return on Equity            | 7079.90         | 7422.50         | 8150.74         | 8667.26         | 8667.26         |
| O&M Expenses                | 3355.59         | 3473.02         | 3595.06         | 3721.81         | 3852.42         |
| Interest on Working Capital | 320.35          | 422.40          | 341.50          | 396.11          | 394.46          |
| <b>Total</b>                | <b>15254.16</b> | <b>21859.50</b> | <b>16183.26</b> | <b>19618.97</b> | <b>19313.47</b> |

(₹ in lakh)

| Asset-II         |         |         |         |         |         |
|------------------|---------|---------|---------|---------|---------|
| Particulars      | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
| Depreciation     | 527.97  | 1118.98 | 582.29  | 1051.75 | 2091.88 |
| Interest on Loan | 0.00    | 0.00    | 6.77    | 48.66   | 112.76  |
| Return on Equity | 5294.97 | 4981.29 | 4678.86 | 4764.67 | 4921.75 |
| O&M Expenses     | 1937.12 | 1938.04 | 1958.76 | 2028.09 | 2099.08 |



| Asset-II                    |                |                |                |                |                |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|
| Particulars                 | 2019-20        | 2020-21        | 2021-22        | 2022-23        | 2023-24        |
| Interest on Working Capital | 171.98         | 179.50         | 164.88         | 176.91         | 198.64         |
| <b>Total</b>                | <b>7932.04</b> | <b>8217.81</b> | <b>7391.56</b> | <b>8070.08</b> | <b>9424.11</b> |

57. The details of the IWC claimed by the Petitioner for the 2019-24 period are as follows:

(₹ in lakh)

| Asset-I                            |                |                |                |                |                |
|------------------------------------|----------------|----------------|----------------|----------------|----------------|
| Particular                         | 2019-20        | 2020-21        | 2021-22        | 2022-23        | 2023-24        |
| O&M Expenses                       | 279.63         | 289.42         | 299.59         | 310.15         | 321.04         |
| Maintenance Spares                 | 503.34         | 520.95         | 539.26         | 558.27         | 577.86         |
| Receivables                        | 1875.51        | 2695.01        | 1995.20        | 2418.78        | 2374.61        |
| <b>Total Working Capital</b>       | <b>2658.48</b> | <b>3505.38</b> | <b>2834.05</b> | <b>3287.20</b> | <b>3273.51</b> |
| Rate of Interest (in %)            | 12.05          | 12.05          | 12.05          | 12.05          | 12.05          |
| <b>Interest on Working Capital</b> | <b>320.35</b>  | <b>422.40</b>  | <b>341.50</b>  | <b>396.11</b>  | <b>394.46</b>  |

(₹ in lakh)

| Asset-II                           |                |                |                |                |                |
|------------------------------------|----------------|----------------|----------------|----------------|----------------|
| Particular                         | 2019-20        | 2020-21        | 2021-22        | 2022-23        | 2023-24        |
| O&M Expenses                       | 161.43         | 167.16         | 163.23         | 169.01         | 174.92         |
| Maintenance Spares                 | 290.57         | 300.90         | 293.81         | 304.21         | 314.86         |
| Receivables                        | 975.25         | 1021.53        | 911.29         | 994.94         | 1158.70        |
| <b>Total Working Capital</b>       | <b>1427.25</b> | <b>1489.59</b> | <b>1368.33</b> | <b>1468.16</b> | <b>1648.48</b> |
| Rate of Interest (in %)            | 12.05          | 12.05          | 12.05          | 12.05          | 12.05          |
| <b>Interest on Working Capital</b> | <b>171.98</b>  | <b>179.50</b>  | <b>164.88</b>  | <b>176.91</b>  | <b>198.64</b>  |

### Capital Cost

58. Regulation 19 of the 2019 Tariff Regulations provide as follows:

**“19 Capital Cost:** (1) *The Capital cost of the generating station or the transmission system, as the case may be, as determined by the Commission after prudence check in accordance with these regulations shall form the basis for determination of tariff for existing and new projects.*

(2) *The Capital Cost of a new project shall include the following:*

- (a) *The expenditure incurred or projected to be incurred up to the date of commercial operation of the project;*
- (b) *Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;*
- (c) *Any gain or loss on account of foreign exchange risk variation pertaining to the loan amount availed during the construction period;*
- (d) *Interest during construction and incidental expenditure during construction as computed in accordance with these regulations;*
- (e) *Capitalised Initial Spares subject to the ceiling rates in accordance with these regulations;*



- (f) Expenditure on account of additional capitalization and de-capitalisation determined in accordance with these regulations;
- (g) Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the date of commercial operation as specified under Regulation 7 of these regulations;
- (h) Adjustment of revenue earned by the transmission licensee by using the assets before the date of commercial operation;
- (i) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;
- (j) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal upto the receiving end of the generating station but does not include the transportation cost and any other appurtenant cost paid to the railway;
- (k) Capital expenditure on account of biomass handling equipment and facilities, for co-firing;
- (l) Capital expenditure on account of emission control system necessary to meet the revised emission standards and sewage treatment plant;
- (m) Expenditure on account of fulfilment of any conditions for obtaining environment clearance for the project;
- (n) Expenditure on account of change in law and force majeure events; and
- (o) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.

(3) The Capital cost of an existing project shall include the following:

- (a) Capital cost admitted by the Commission prior to 1.4.2019 duly tried up by excluding liability, if any, as on 1.4.2019;
- (b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;
- (c) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;
- (d) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;
- (e) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal up to the receiving end of generating station but does not include the transportation cost and any other appurtenant cost paid to the railway; and
- (f) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.”

(4) The capital cost in case of existing or new hydro generating station shall also include:

- (a) cost of approved rehabilitation and resettlement (R&R) plan of the project in conformity with National R&R Policy and R&R package as approved; and
- (b) cost of the developer's 10% contribution towards Rajiv Gandhi Grameen Vidutikaran Yojana (RGGVY) and Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) project in the affected area.

(5) The following shall be excluded from the capital cost of the existing and new projects:

- (a) The assets forming part of the project, but not in use, as declared in the tariff petition;



(b) De-capitalised Assets after the date of commercial operation on account of replacement or removal on account of obsolescence or shifting from one project to another project:

Provided that in case replacement of transmission asset is recommended by Regional Power Committee, such asset shall be decapitalised only after its redeployment;

Provided further that unless shifting of an asset from one project to another is of permanent nature, there shall be no de-capitalization of the concerned assets.

(c) In case of hydro generating stations, any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State Government by following a transparent process;

(d) Proportionate cost of land of the existing project which is being used for generating power from generating station based on renewable energy; and

(e) 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.”

59. The Petitioner vide affidavit dated 27.7.2021 has claimed capital cost including ACE and decapitalisation for 2019-24 tariff period and submitted Auditor's Certificate dated 16.7.2021 in support of the same. The capital cost calimed by the Petitioner for 2019-24 period is as follows:

**Asset-I (HVDC Portion)**

(₹ in lakh)

| Particulars                                    | Spill over of 2014-19 approved ACE/ Decapitalisation |
|--|--|
| <b>Capital Cost as on 31.3.2019</b>            | <b>80842.15</b>                                      |
| ACE during 2019-20                             | 4695.26  |
| Decapitalization during 2019-20                | -30.78   |
| ACE during 2020-21                             | 8285.53  |
| Decapitalization during 2020-21                | -479.55  |
| Estimated ACE during 2021-22                   | 26528.72   |
| Estimated Decapitalization during 2021-22      | -5099.48   |
| Estimated ACE during 2022-23                   | 0.00   |
| Estimated ACE during 2023-24                   | 0.00   |
| <b>Estimated capital cost as on 31.03.2024</b> | <b>114741.85</b>                                     |



**Asset-II (AC Portion)**

(₹ in lakh)

| Particulars  | Spill over of 2014-19 approved ACE | Newequipment add-cap proposed | New building add-cap proposed | De-capitalisation of SVC | Total           |
|--|------------------------------------|-------------------------------|-------------------------------|--------------------------|-----------------|
| <b>Capital Cost as on 31.3.2019</b>                |                                    |                               |                               |                          | <b>59889.35</b> |
| ACE during 2019-20                                 | 188.09                             | 293.65                        | -                             | -                        | 481.74          |
| Decapitalization during 2019-20                    | -                                  | -5.67                         | -                             | -                        | -5.67           |
| ACE during 2020-21                                 | 76.35                              | 35.58                         | -                             | -                        | 111.93          |
| Decapitalization during 2020-21                    | -                                  | -                             | -                             | -7292.13                 | -7292.13        |
| Estimated ACE during 2021-22                       | -                                  | 341.43                        | 743.19                        | -                        | 1084.62         |
| Estimated Decapitalization during 2021-22          | -                                  | -3.21                         | -129.23                       | -                        | -132.44         |
| Estimated Additional Capitalization during 2022-23 | -                                  | 589.58                        | 2229.58                       | -                        | 2819.16         |
| Estimated Decapitalization during 2022-23          | -                                  | -13.86                        | -387.69                       | -                        | -401.55         |
| Estimated ACE during 2023-24                       | -                                  | 3345.70                       | 743.20                        | -                        | 4088.9          |
| Estimated Decapitalization during 2023-24          | -                                  | -298.48                       | -129.23                       | -                        | -427.71         |
| <b>Estimated capital cost as on 31.3.2024</b>      |                                    |                               |                               |                          | <b>60216.20</b> |

60. The Petitioner has claimed a capital cost of ₹80842.15 lakh and ₹59889.35 lakh as on 31.3.2019 for Asset-I and Asset-II, respectively. The Commission has allowed the capital cost of ₹80842.16 lakh and ₹59889.34 lakh as on 31.3.2019 for Asset-I and Asset-II respectively in this order for arriving the trued-up tariff for 2014-19 tariff period. Therefore, the capital cost of ₹80842.16 lakh and ₹59889.34 lakh as on 31.3.2019 of Asset-I and Asset-II respectively has been considered as the opening capital cost as on 1.4.2019 for the purpose of determination of tariff for the 2019-24 period in accordance with Regulation 19 of the 2019 Tariff Regulations.

**Additional Capital Expenditure (“ACE”)**

61. Regulation 24 and Regulation 25 of the 2019 Tariff Regulations provides as follows:

***“24. Additional Capitalisation within the original scope and upto the cut-off date***



(1) *The additional capital expenditure in respect of a new project or an existing project incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:*

- (a) *Undischarged liabilities recognized to be payable at a future date;*
- (b) *Works deferred for execution;*
- (c) *Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 23 of these regulations;*
- (d) *Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority or order or decree of any court of law;*
- (e) *Change in law or compliance of any existing law; and*
- (f) *Force Majeure events:*

*Provided that in case of any replacement of the assets, the additional capitalization shall be worked out after adjusting the gross fixed assets and cumulative depreciation of the assets replaced on account of de-capitalization.*

(2) *The generating company or the transmission licensee, as the case may be shall submit the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution.”*

#### **25. Additional Capitalisation within the original scope and after the cut-off date**

(1) *The additional capital expenditure incurred or projected to be incurred in respect of an existing project or a new project on the following counts within the original scope of work and after the cut-off date may be admitted by the Commission, subject to prudence check:*

- (a) *Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority, or order or decree of any court of law;*
- (b) *Change in law or compliance of any existing law;*
- (c) *Deferred works relating to ash pond or ash handling system in the original scope of work;*
- (d) *Liability for works executed prior to the cut-off date;*
- (e) *Force Majeure events;*
- (f) *Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;*
- (g) *Raising of ash dyke as a part of ash disposal system.*

(2) *In case of replacement of assets deployed under the original scope of the existing project after cut-off date, the additional capitalization may be admitted by the Commission, after making necessary adjustments in the gross fixed assets and the cumulative depreciation, subject to prudence check on the following grounds:*

- (a) *The useful life of the assets is not commensurate with the useful life of the project and such assets have been fully depreciated in accordance with the provisions of these regulations;*
- (b) *The replacement of the asset or equipment is necessary on account of change in law or Force Majeure conditions;*
- (c) *The replacement of such asset or equipment is necessary on account of obsolescence of technology; and*
- (d) *The replacement of such asset or equipment has otherwise been allowed by the Commission.”*



62. The Petitioner has claimed the following ACE and de-capitalisation for the transmission asset:

| Particulars                                | (₹ in lakh) |           |
|--|-------------|-----------|
|  | Asset-I     | Asset-II  |
| Estimated ACE during 2019-20               | 2000.00*    | 1402.04** |
| Estimated De capitalization during 2019-20 | -276.10*    | -157.83** |
| Estimated ACE during 2020-21               | 29171.63*   | 1088.16** |
| Estimated De capitalization during 2020-21 | -4083.37*   | -166.87** |
| Estimated ACE during 2021-22               | 7220.49     | 1140.13   |
| Estimated De capitalization during 2021-22 | -1003.81    | -129.23   |
| Estimated ACE during 2022-23               | 1771.45     | 1350.78   |
| Estimated De capitalization during 2022-23 | -251.58     | -143.09   |
| Estimated ACE during 2023-24               | 0.00        | 3315.31   |
| Estimated De capitalization during 2023-24 | 0.00        | -344.89   |

\*Spillover from 2014-19 block.

\*\*ACE of ₹168.32 lakh & De-capitalisation of ₹26.39 lakh during 2019-20 is spill over 2014-19 and ACE of ₹309.80 lakh & De-capitalisation of ₹33.93 lakh during 2020-21 is spill over 2014-19

63. The ACE of ₹31171.63 lakh and ₹478.12 lakh during 2019-20 and 2020-21 in case of Asset-I and Asset-II respectively is spillover of 2014-19 and is on account of ACE already admitted vide order dated 28.1.2016 and approved by Board of Directors of the Petitioner company in its 364th meeting held on 27.3.2019 is covered under Regulation 25(2) of the 2019 Tariff Regulations. Further, the ACE of ₹7220.49 lakh and ₹1771.45 lakh during 2021-22 and 2022-23 respectively in case of Asset-I and ACE of ₹1233.72, ₹778.36, ₹1140.13, ₹1350.78 and ₹3315.31 lakh during 2019-20, 2020-21, 2021-22, 2022-23 and 2023-24 respectively for Asset-II projected during 2019-24 is for replacement of some of the component/equipment in the system which has deteriorated due to ageing and may affect the stability and reliability of the Grid in case of sudden failure and covered under Regulation 25(2) of the 2019 Tariff Regulations.

64. The Petitioner vide affidavit dated 27.7.2021 has submitted that the Auditor's Certificate submitted with the petition is being revised and the de-capitalisation of ICTs, its associated bays & SVC at Kanpur has been incorporated. Further, there was an



inadvertent error in submitting the de-capitalised value of equipment being replaced in comparison to de-capitalised value approved *vide* order dated 28.1.2016 in Petition No. 133/TT/2015 while filing the instant petition and the same is also rectified. The Petitioner has submitted revised Auditor's Certificate dated 16.7.2021 in support of above and requested the Commission to condone the inadvertent error and allow the tariff based on the revised certificate dated 16.7.2021 submitted herein. The revised capital cost claimed during the 2019-24 tariff period for the transmission assets is as follows:

**Asset-I**

| Particulars                      | (₹ in lakh)                        |  |
|----------------------------------|------------------------------------|--|
|                                  | Spill over of 2014-19 approved ACE |  |
| ACE during 2019-20               | 4695.26                            |  |
| De-capitalisation during 2019-20 | -30.78                             |  |
| ACE during 2020-21               | 8285.53                            |  |
| De-capitalisation during 2020-21 | -479.55                            |  |
| ACE during 2021-22               | 26528.72                           |  |
| De-capitalisation during 2021-22 | -5099.48                           |  |
| ACE during 2022-23               | 0.00                               |  |
| ACE during 2023-24               | 0.00                               |  |

**Asset-II**

| Particulars                      | (₹ in lakh)                       |                            |                           |               |          |
|----------------------------------|-----------------------------------|----------------------------|---------------------------|---------------|----------|
|                                  | Spillover of 2014-19 approved ACE | New equipment ACE proposed | New building ACE proposed | De-cap of SVC | Total    |
| ACE during 2019-20               | 188.09                            | 293.65                     | 0.00                      | 0.00          | 481.74   |
| De-capitalisation during 2019-20 | 0.00                              | -5.67                      | 0.00                      | 0.00          | -5.67    |
| ACE during 2020-21               | 76.35                             | 35.58                      | 0.00                      | 0.00          | 111.93   |
| De-capitalisation during 2020-21 | 0.00                              | 0.00                       | 0.00                      | -7292.13      | -7292.13 |
| ACE during 2021-22               | 0.00                              | 341.43                     | 743.19                    | 0.00          | 1084.62  |
| De-capitalisation during 2021-22 | 0.00                              | -3.21                      | -129.23                   | 0.00          | -132.44  |
| ACE during 2022-23               | 0.00                              | 589.58                     | 2229.58                   | 0.00          | 2819.16  |
| De-capitalisation during 2022-23 | 0.00                              | -13.86                     | -387.69                   | 0.00          | -401.55  |
| ACE during 2023-24               | 0.00                              | 3345.70                    | 743.20                    | 0.00          | 4088.9   |
| De-capitalisation during 2023-24 | 0.00                              | -298.48                    | -129.23                   | 0.00          | -427.71  |





65. The Commission *vide* RoP of hearing dated 3.8.2021 directed the Petitioner to submit the report for the proposed replacement/ refurbishment of equipment that deteriorated and the capital cost estimate details as per Form-5 (Element wise break-up of Project/ Asset/ Element Cost for Transmission System or Communication System) of ACE claimed for Asset-I and Asset-II proposed during the 2019-24 tariff period.

66. In response, the Petitioner *vide* affidavit dated 27.8.2021 has submitted that the Sub-station assets under Rihand transmission project have already completed 25 years of useful life. Based on monitoring of equipment's condition and to maintain reliable operation of assets under Rihand transmission project, some of the problematic equipment are proposed for replacement under ACE are as follows:

- a. Circuit Breakers
- b. Isolators
- c. Current Transformers
- d. Firefighting system
- e. Process bus implementation in 220 kV side at Bassi Sub-station
- f. Protection panels etc.

67. The Petitioner has submitted that the replacement of equipment have been proposed based on difficulties being faced by the Petitioner in operation. Further, most of these equipments are obsolete and no service / spare support are available from OEMs. Due to ageing, non-operation/ maloperation of these equipments have been observed. In case of transformer/ reactors, CPRI was approached to analyse the test reports of critical equipment and based on recommendation of CPRI, replacement has been proposed. Delay in replacement of these equipments may result in-service failure of equipment which may cause damage to nearby equipment also. Hence, for reliable operation of grid, these equipments are needed to be replaced.



68. Further, the Petitioner has submitted that the residential and non-residential buildings at Ballabgarh, Mandola and Bassi were constructed during inception of the project and already completed/ going to complete 30 years of useful life during the 2019-24 tariff period and with passage of time, along with the equipment, the condition of buildings has also deteriorated. These buildings are of load bearing type structure and in damaged and dilapidated condition. To provide a safe residential arrangement to employee posted for round the clock operation of the sub-station, reconstruction of these buildings is required.

69. In response to the Technical Validation (TV) letter, the Petitioner *vide* affidavit dated 27.7.2021 has submitted the following justification for fresh ACE proposed during the 2019-24 tariff period:

(a) The Petitioner has decapitalised 2 Numbers SVC's installed at 400/220 kV Kanpur Sub-station as they have already completed their useful life of 25 years and also due to repeated technical issues being faced during O&M Expenses of these SVC's like failure of Control & Protection cards, failure of filter banks etc. Further, the Original Equipment Manufactures (OEM), ABB has already withdrawn the supply and service support for old SVCs due to obsolescence of technology. Presently, SVC - 1 & 2 are out of service since 24.8.2020 due to Control & Protection problem and non-availability of spare cards. Therefore, considering the end of useful life, difficulties in maintaining the operations of SVC and recommendation of CTU, the Petitioner has proposed the de-capitalisation of 2 numbers SVCs at Kanpur as per the original gross block of ₹7292.13 lakh w.e.f. 24.8.2020.



(b) The ACE of ₹39509.51 lakh and ₹264.44 lakh during 2019-24 tariff period for Asset-I and Asset-II respectively is on account of replacement of equipment and are spill-over of the ACE already approved by the Commission for the 2014-19 tariff period *vide* order dated 28.1.2016 in Petition No. 133/TT/2015 and the Petitioner's Board of Directors in its 364<sup>th</sup> meeting held on 27.3.2019. ACE has been claimed in accordance with Regulation 25(2) of the 2019 Tariff Regulations.

(c) Further, the ACE of ₹8321.91 lakh during 2019-24 for Asset-II are fresh ACE proposed for the replacement of some of the component/ equipment in the system (₹4605.94 lakh) which may affect the stability and reliability of the Grid in case of sudden failure and building in Balbharh, Mandola and Bassi (₹3715.97 lakh) which have deteriorated due to ageing and is unsafe for the operation and maintenance staff staying in these sub-stations and is detrimental to quick response in case of failures and disturbance of the equipment and transmission lines. The ACE is claimed under Regulation 25(2) of the 2019 Tariff Regulations.

70. The Petitioner has submitted equipment wise details of ACE/ De-capitalisation. The debt:equity ratio is 51.79:48.21 as on 31.3.2009 and the same debt: equity ratio have been considered for de-capitalization. The details are as follows :

#### Asset-I

| (₹ in lakh) |                          |         |         |                      |                         |
|-------------|--------------------------|---------|---------|----------------------|-------------------------|
| Year        | De-capitalisation amount | Debt    | Equity  | Cumulative repayment | Cumulative Depreciation |
| 2019-20     | 30.78                    | 15.94   | 14.84   | 15.94                | 27.70                   |
| 2020-21     | 479.55                   | 248.36  | 231.19  | 248.36               | 431.60                  |
| 2021-22     | 5099.47                  | 2641.02 | 2458.45 | 2641.02              | 4589.52                 |
| 2022-23     | 0.00                     | 0.00    | 0.00    | 0.00                 | 0.00                    |
| 2023-24     | 0.00                     | 0.00    | 0.00    | 0.00                 | 0.00                    |



## Asset-II

| Year    | De-capitalisation amount | Debt    | Equity  | Cumulative repayment | Cumulative Depreciation |
|---------|--------------------------|---------|---------|----------------------|-------------------------|
| 2019-20 | 5.67                     | 2.94    | 2.73    | 2.94                 | 5.10                    |
| 2020-21 | 7292.13                  | 3776.59 | 3515.54 | 3776.59              | 6562.92                 |
| 2021-22 | 132.44                   | 68.59   | 63.85   | 68.59                | 119.20                  |
| 2022-23 | 401.55                   | 207.96  | 193.59  | 207.96               | 361.40                  |
| 2023-24 | 427.71                   | 221.51  | 206.20  | 221.51               | 384.94                  |

(₹ in lakh)

71. Further, in response to the TV letter, the Petitioner *vide* affidavit dated 27.7.2021 has also submitted the reasons for the delay in refurbishment works and its present status. The same has been summarised as follows:

(a) **Constraints in site visit by prospective global vendors:** The Petitioner has submitted that every HVDC project is unique in design and has various equipment specific to that project only. As refurbishment of Rihand-Dadri HVDC is the first refurbishment project of Bipole in India, in which only a part of the equipment are to be replaced and same needs to be integrated with old/ newly replaced equipment. This involves thorough and in-depth technical evaluation by the vendors before participating in the tendering process. Both HVDC Station are located within the premises of NTPC which is declared prohibited area and asset of national importance where foreigners can visit only after safety clearance from Ministry of External Affairs (MEA) and Ministry of Home Affairs (MHA) if VISA is marked with "Restricted in prohibited areas". Further, the site visit of various global prospective vendors from Europe and China was arranged by the Petitioner, which took considerable time due to process involving clearance from MEA and MHA in 2016.

(b) **Complex technical integration with old System:** Such refurbishment work of a part of system involving complex technological integration and intricacies within the overall system (originally designed, supplied, installed, tested and



commissioned by Single Original supplier of HVDC Installation) is being attempted by the Petitioner for the first time and there are very limited vendors to carry out such job. The Petitioner opted for open tendering to carry out the said refurbishment work in order to get the best technology at best price i.e. techno commercial benefit. Further, a separate meeting with every vendor was arranged to discuss their technical offer. The preparation of Technical Specification by matching the existing equipment with the new equipment for this project also took considerable time, being first of its kind refurbishment project in India.

(c) **Tendering & Award:** Even though open tender was issued in March, 2017, the work could finally be awarded in May, 2019 because of Pre-bid discussions, Vendor assessment, COVID 19 pandemic etc.

(d) **Status of refurbishment works**

- (i) SCADA system, valve cooling system, ventilation system, DC disconnecter, AC breakers had been received at site, which was to be replaced/installed during shutdown.
- (ii) Shutdown for Pole-1, Pole 2 and Bipole was planned from August, 2021 and work was expected to be completed by December, 2021. The replacement of valve hall equipment like Snubber capacitor, Fiber optic cable had already been completed.
- (iii) **Non-shutdown activities:** Factory System Test (FST) for HVDC Control & Protection system had been completed. Control & Protection system panels was expected to reach at site by last week of July, 2021. Installation of panel was to start after reaching of panels at site and all non-shutdown work was to be completed before availing the pole shutdown and foundation of cooling towers for valve cooling system is in progress.



- (iv) **Shutdown Activities:** Inter panel wiring of new panels with the existing panel, and all pre-commissioning and system test was to be completed during shutdown planned from August, 2021 to December, 2021.
- (v) Thyristor control units (TCU) had been received at site and was to be replaced during shutdown.
- (vi) Switchyard equipment such AC/DC Breakers work was to be completed during shutdown planned from August, 2021 to December, 2021.
- (vii) Converter Transformer Bushings was expected to reach site by end of July, 2021 and was to be commissioned during shutdown.

72. We have considered the submissions made by the Petitioner. The details of ACE allowed/ disallowed for 2019-24 tariff period are as follows:

**(a) Replacement of sub-station equipment:**

73. It is observed that the transmission assets were put into commercial operation on 1.4.1992 and have completed more than 27 years of its useful life. The Petitioner has proposed ACE at the fag end of the useful life of the transmission assets. The proposed ACE is towards replacement of various sub-station equipment such as Circuit Breakers, Isolators, Current Transformers, Firefighting system, Process Bus implementation in 220 kV side at Bassi Sub-station, Protection panels etc.

74. Further, the Petitioner has proposed the decapitalisation of 2 numbers SVCs installed at 400/220 kV Kanpur Sub-station as they have already completed useful life of 25 years and are causing repeated technical issues like failure of Control & Protection cards, failure of Filter banks etc. The OEM, ABB has also withdrawn the supply & service support for old SVCs due to obsolescence of technology. The Commission *vide* order dated 2.4.2019 in Petition No. 371/MP/2018, filed by the Petitioner with regard to



in-principle approval of add-cap for refurbishment of SVCs at Kanpur Sub-station, has sought adequacy of present capacity and/or requirement of higher capacity SVC/STATCOM at Kanpur Sub-station. Accordingly, CTU carried out the simulation studies for ascertaining the effectiveness of SVCs at Kanpur. Based on studies, CTU *vide* its study report dated 14.11.2019 has suggested that impact of SVCs at Kanpur or around is not recommended at this juncture. Presently, SVC- 1 and 2 is out of service since 24.8.2020 due to Control and Protection problem and non-availability of spare cards. Therefore, considering the end of useful life, difficulties in maintaining the operations of SVC and recommendation of CTU, the Petitioner has proposed the de-capitalisation of 2 numbers SVCs at Kanpur as per the original gross block of ₹7292.13 lakh w.e.f. 24.8.2020.

75. Accordingly, the replacement of the equipment mentioned above such as Circuit Breakers, Isolators, Current Transformers, Firefighting system, Process Bus implementation in 220 kV side at Bassi Sub-station, Protection panels etc. and 2 numbers SVCs at Kanpur and consequential ACE is approved, subject to true-up on actual basis. Further, we direct the Petitioner to submit the details of abstract cost estimates and Sub-station wise actual cost of the replaced equipment at the time of truing up.

**(b) Replacement of ICT and Reactors:**

76. Further, it is observed that the ACE claimed for 2023-24 includes replacement of existing 80 MVAR Bus Reactors and 500 MVA ICT. We observe that the Petitioner has also projected ACE for replacement of 80 MVAR bus reactor at Bhadrawati and 500 MVA ICT after the completion of useful life of the equipment covered under the transmission project. We also observe that these line reactors are major elements of



the transmission project which are critical and high value elements. So, we are of the view that if such items are to be replaced, it is prudent to discuss in RPC and with the concerned beneficiaries. Accordingly, the Commission directed the Petitioner to submit the details of relevant RPC approval during the hearing held on 23.6.2022.

77. The Petitioner *vide* affidavit dated 21.7.2022 submitted that the ACE towards replacement of ICT at Panipat, Bus reactor at Ballabgarh and line reactor at Agra has been proposed during the tariff period 2019-24. The matter was discussed in 53<sup>rd</sup> NRPC held on 29.4.2022 and the details are as follows :

| Sl. No. | Equipment Details   | Remarks/ Present Proposal  | NRPC decision  |
|---------|---|--|--|
| 1       | 400/220 kV 150 MVA Single-Ph ICT R & Y- Ph at Panipat Sub-station | All single-phase units replaced with 3-Ph 500MVA ICT as contingency arrangement due to failure of two single phase unit. It is proposed to be replenished.                 | Replacement of units with 3-ph 500 MVA ICT approved in 53 <sup>rd</sup> NRPC.<br><br>The existing ICT has been replaced from the regional spares and is to be recouped.  |
| 2       | 400 kV 16.67 MVAR 1-Ph Bhiwadi-1 L/R-Y at Agra Sub-station        | Single-phase reactors (03 nos.) replaced with 3-Ph 50MVAR reactor as contingency arrangement due to failure of one single phase reactor. It is proposed to be replenished. | Replacement of 1-ph units with 400 kV 50 MVAR Line Reactor (3-ph unit) approved in 53 <sup>rd</sup> NRPC.<br><br>The existing Reactor has been replaced from the regional spares and is to be recouped.  |
| 3       | 400 kV 80 MVAR 3-Ph Bus Reactor at Ballabgarh Sub-station         | Needs replacement as recommended by CPRI. It is proposed to be replaced.   | It was decided in 53 <sup>rd</sup> NRPC that it may be discussed first in Consultative meeting of NR. Then it may be brought before NRPC forum for discussion.<br><br>The replacement of Bus Reactor was also discussed in 8 <sup>th</sup> CMETS-NR dated 30.6.2022 wherein it was agreed to replace 80 MVAR reactor with 125 MVAR (420 kV) bus reactor. |

78. We have considered the submissions of the Petitioner. The relevant extracts of the Minutes of the 53<sup>rd</sup> NRPC meeting held on 29.4.2022 are as follows:





**A.9 Replacement of reactors and transformer under add-cap 2019-24 (Agenda by POWERGRID)**

A.9.1 POWERGRID apprised that during 51<sup>st</sup> NRPC meeting, POWERGRID requested for replacement of 420 kV 50 MVAR Agra Line Reactor at Kanpur substation and 420 kV 50 MVAR Lucknow Line Reactor at Bareilly substation installed in Singrauli Transmission System under add-cap 2019-24.

A.9.2 It was also discussed during the 51<sup>st</sup> NRPC meeting that POWERGRID may prepare a comprehensive proposal instead of bringing proposal in piecemeal maner.

A.9.3 POWERGRID had carried out assessment of around 60 transformers & reactors which have already crossed or were approaching the end of useful life (25 years from commissioning) in Northern Region. After the internal assessment, a total of 24 equipment was identified for Residual Life Assessment Studies based on various diagnostic test parameter results available and has also recommended some additional detailed & advanced testing on case-to-case basis. CPI has recommended for replacement of following 06 equipment (Transformers-2 & Reactors-4)

1. 02 nos. 400/220 kV, 150 MVA single-phase ICT units at panipat (BBMB): the said units had already completed 36 years of service.

2. 420 kV 50 MVAR Reactor at Kanur, 420 kV 50 MVAR Reactor at Agra, 420 kV 50 MVAR Reactor at Bareilly & 420 kV 80 MVAR Reactor at Ballabgarh: The Reactor at Kanpur has completed 38 years, Reactors at Bareilly & Ballabgarh have completed 32 years & Reactor at Agra had completed 25 years of service.

A.9.4 In view of the following equipment are proposed to be replaced:

| <b>Sl. No.</b> | <b>Equipment Details</b>                             | <b>Project</b> | <b>Installation date</b> | <b>Age as on 31/03/2022</b> | <b>NRPC decision</b>   |
|----------------|--|----------------|--------------------------|-----------------------------|--|
| 1              | 400 kV 50 MVAR 3-Ph Lucknow UPPCL LR at Bareilly S/S | Singrauli TS   | 05/04/89                 | 33.01                       | During 5 <sup>th</sup> CMETS_NR, it was agreed to install 80 MVAR LR at Bareilly end on 400 kV Barailly UPPCL Line as per system requirement. It is proposed to be replaced. |
| 2              | 400 kV 50 MVAR 3-Ph Agra LR at Kanpur S/S            | Singrauli TS   | 10/05/84                 | 37.92                       | During 5 <sup>th</sup> CMETS-NR, it was agreed to install 80 MVAR LR at Bareilly end on 400 kV Barailly UPPCL Line as per system   |



|   |   |              |            |       |  |
|---|---|--------------|------------|-------|--|
|   |   |              |            |       | <i>requirement. It is proposed to be replaced.</i>   |
| 3 | 400 kV<br>16.67<br>MVAR 1-<br>Ph<br>Bhiwadi-1<br>L/R-Y at<br>Agra Sub-<br>station | Rihand<br>TS | 28/03/97   | 25.02 | <i>Single-phase reactors( 03 nos.) replaced with 3-Ph 50 MVAR reactor as contingency arrangement due to failure of one single phase reactor. It is proposed to be replenished.</i> |
| 4 | 400 kV 80<br>MVAR 3-<br>Ph Bus<br>Reactor at<br>Ballabgarh<br>Sub-station         | Rihand<br>TS | 23/06/1989 | 32.79 | <i>Needs replacement as recommended by CPRI. It is proposed to be replaced.</i>  |
| 5 | 400/220 kV<br>150 MVA<br>Single-Ph<br>ICT R Ph at<br>Panipat<br>Sub-station       | Rihand<br>TS | 04/05/1985 | 36.93 | <i>All single-phase units replaced with 3-Ph 500 MVA ICT as contingency arrangement due to failure of two single phase unit. It is proposed to be replenished.</i>                 |
| 6 | 400/220 kV<br>150 MVA<br>Single-Ph<br>ICT Y- Ph<br>at Panipat<br>Sub-station      | Rihand<br>TS | 04/05/1985 | 36.93 |  |

A.9.5 Accordingly, replacement of above equipment was proposed under ADD\_CAP 2019-24. The CPRI reports had already been discussed in 52<sup>nd</sup> NRPC meeting.

A.9.7 MS, NRPC stated that installation of 80 MVAR reactor at Bareilly in place of 50 MVAR reactor may be decided by the central Commission whether it is permissible in case of ADD-CAP.

A.9.7 POWERGRID stated that Southern Region has proceeded for such a case in past and CERC order is expected soon.

A.9.8 Observation from states was asked but no one came forward to comment.



A.9.9 MS,NRPC asked POWERGRID that reactor repalceemnt at Bhiwadi was done in 2019 but it is being put up for approval of NRPC forum in April,2022.

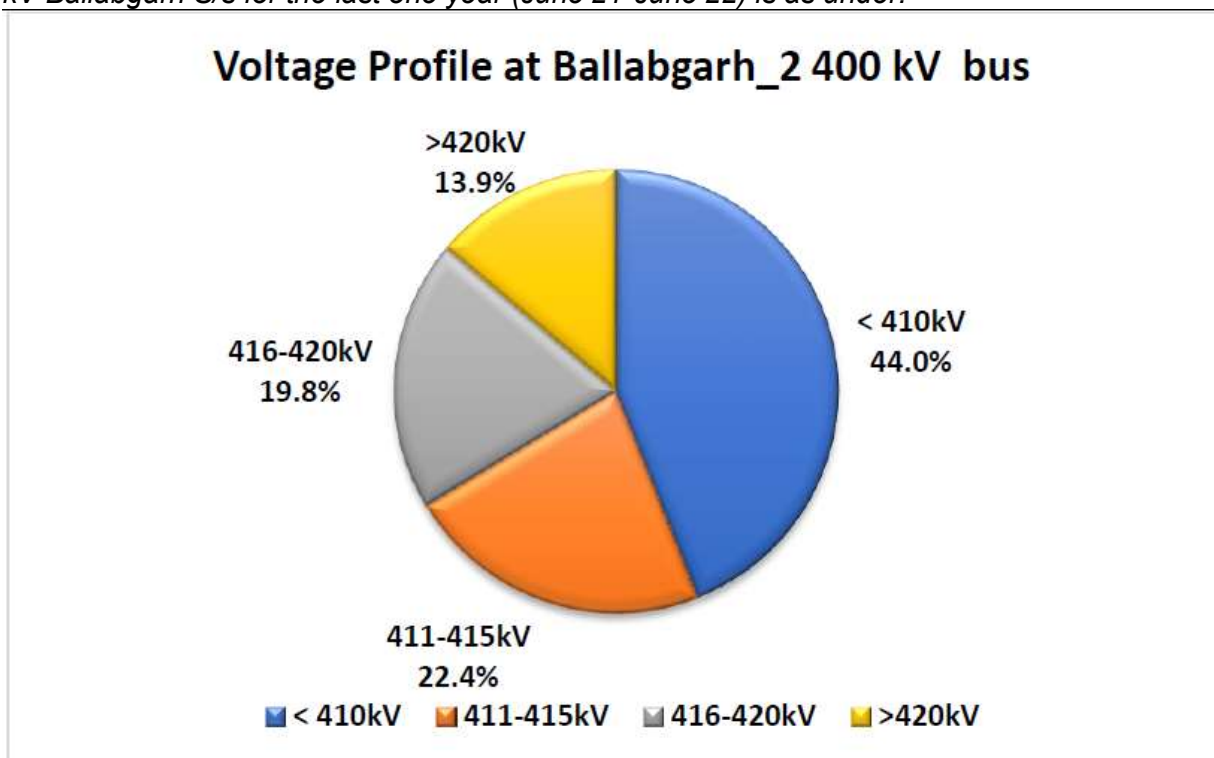
A.9.10. POWERGRID stated that a list of equipment was sent to CPRI in 2018 but reactor failed before CPRI report.

A.9.11 MS, NRPC stressed that such replacements should be taken up at appropriate forum timely.

A.9.12 Forum approved the proposal of POWERGRID at Serial no.1,2,3,5&6 above table. Regarding serial no.4 for BUS Reactor at Ballabgarh S/S, it was decided that it may be discussed first in Consultative meeting of NR. Then it may be brought before NRPC forum for discussion.”

79. The relevant extracts of the Minutes of the 8<sup>th</sup> Consultation Meeting for Evolving Transmission schemes in Northern Region meeting held on 30.6. 2022 are as follows:

“B. ISTS Expansion in Northern Region 1. Replacement of 420kV 80 MVAR 3-Ph Bus Reactor at Ballabgarh It was deliberated that in the 53 rd NRPC meeting held on 29.04.22, POWERGRID agenda for replacement of 420kV 80 MVAR 3-Ph Bus Reactor at Ballabgarh was discussed. POWERGRID had approached CPRI to carry out Residual Life Assessment Studies for the 80 MVAR bus reactor at 400 kV Ballabgarh S/s. The bus reactor has completed 32 years of service and thus crossed its useful life of 25 years from commissioning. CPRI has recommended a replacement for the same. Considering above, NRPC decided that the matter may first be discussed in the Consultative Meeting of NR. From the study results it was observed that taking the 80 MVAR bus reactor into service results in a voltage drop of around 1 kV at Ballabgarh Bus. If the 80 MVAR bus reactor is replaced with 125 MVAR the resultant voltage drop is around 2 kV. Voltage profile of 400 kV Ballabgarh S/s for the last one year (June’21-June’22) is as under:



*From above, it may be seen that 400kV Ballabgarh S/s voltage remained >415 kV for about 34% time. Considering above and the high voltage prevailing in NR grid, it is recommended to replace 420 kV 80 MVAR bus reactor at Ballabgarh with 420 kV 125 MVAR bus reactor. CEA and POSOCO also recommended for Replacement of 80MVAR (420kV) Bus Reactor at Ballabgarh S/s with 125 MVAR (420kV) Bus Reactor in view of prevailing high voltage issues in NR. POWERGRID also confirmed feasibility of replacement. In view of above, proposal for 125 MVAR (420kV) Bus Reactor was agreed.”*

80. Based on the approval of 53<sup>rd</sup> NRPC and 8<sup>th</sup> Consultation Meeting for Evolving Transmission schemes in Northern Region meeting held on 30.6.2022 as mentioned above, we approve the 16.67 MVAR single-phase line Reactor at Agra Sub-station with 50 MVAR Reactor, 80 MVAR Bus Reactor at Agra Sub-station with 125 MVAR Bus Reactor at Ballabgarh Sub-station, 150 MVA single-phase RYY Phase ICT at Panipat Sub-station with three-phase 500 MVA ICT at Panipat Sub-station.

**(c) Building and Civil Works**

81. Apart from above, the Petitioner has also proposed the ACE of ₹3715.97 lakh for the gravel filling works, residential and non-residential buildings at Ballabgarh, Mandola and Bassi substations. The Petitioner has submitted that these buildings were constructed during inception of the project and already completed/ going to complete 30 years of useful life during the 2019-24 tariff block and with passage of time, the condition of buildings have deteriorated. These buildings are of load bearing type structures and in damaged and dilapidated condition. To provide a safe residential arrangement for employees posted on round the clock operation of Sub-station, reconstruction of these buildings is required. We observe that the proposed ACE of ₹3715.97 lakh is a substantial amount but is not supported with the detailed cost estimate and specifications etc. Therefore, we are not willing to consider the ACE on this account, in absence of detailed proposal of the details of non-residential buildings and dwelling units proposed to be dismantled and reconstructed by the Petitioner. Accordingly, the proposed ACE of about ₹3715.97 lakh has not been considered by the



Commission as of now. As directed by the Commission in various orders regarding replacements of buildings and civil structures, the Petitioner may discuss the proposal for construction of buildings and civil structures in the RPC and thereafter approach the Commission with a fresh petition.

82. The spillover net ACE of ₹33899.70 lakh approved in 2014-19 has been allowed under Regulation 25(2) of the 2019 Tairff Regulations and the same is as follows:

**Asset-I**

(₹ in lakh)

| Particulars                    | Type      | ACE      | De-capitalisation | Net ACE  |
|--------------------------------|-----------|----------|-------------------|----------|
| Approved ACE in 2014-19 period | Equipment | 39501.51 | 5609.81           | 33899.70 |

**Asset-II**

83. The spillover net ACE of ₹264.44 lakh approved in 2009-14 tariff order and fresh net ACE of ₹62.41 lakh has been allowed under Regulation 25(2) of the 2019 Tairff Regulations. The same is as follows:

**Asset-II**

(₹ in lakh)

| Particulars                    | Type             | ACE     | De-capitalisation | Net ACE  |
|--------------------------------|------------------|---------|-------------------|----------|
| Approved ACE in 2014-19 period | Equipment        | 264.44  | 0.00              | 264.44   |
| Fresh Proposed                 | Other Equipments | 2390.41 | 53.04             | 2337.37  |
|                                | BR at Ballbgarh  | 560.00  | 138.60            | 421.40   |
|                                | ICT Panipat      | 1165.95 | 115.72            | 1050.23  |
|                                | LR at Agra       | 489.58  | 13.86             | 475.72   |
|                                | SVC at Kanpur    | 0.00    | 7292.13           | -7292.13 |

84. In view of the above, the Net ACE allowed by the Commission under Regulation 25(2) of the 2019 Tariff Regulations.

85. The detailed break-up of net ACE allowed is as follows:



(₹ in lakh)

| Asset-I          |              |                |                |                 |             |             |                 |
|------------------|--------------|----------------|----------------|-----------------|-------------|-------------|-----------------|
| Particulars      |              | 2019-20        | 2020-21        | 2021-22         | 2022-23     | 2023-24     | Total           |
| ACE              | A            | 4695.26        | 8285.53        | 26528.72        | 0.00        | 0.00        | 39509.51        |
| Decapitalisation | B            | 30.78          | 479.55         | 5099.48         | 0.00        | 0.00        | 5609.81         |
| <b>Net ACE</b>   | <b>C=A-B</b> | <b>4664.48</b> | <b>7805.98</b> | <b>21429.24</b> | <b>0.00</b> | <b>0.00</b> | <b>33899.70</b> |

(₹ in lakh)

| Asset-II         |              |               |                 |               |               |                |                 |
|------------------|--------------|---------------|-----------------|---------------|---------------|----------------|-----------------|
| Particulars      |              | 2019-20       | 2020-21         | 2021-22       | 2022-23       | 2023-24        | Total           |
| ACE              | A            | 481.74        | 111.93          | 341.43        | 589.58        | 3345.70        | 4870.38         |
| Decapitalisation | B            | 5.67          | 7292.13         | 3.21          | 13.86         | 298.48         | 7613.35         |
| <b>Net ACE</b>   | <b>C=A-B</b> | <b>476.07</b> | <b>-7180.20</b> | <b>338.22</b> | <b>575.72</b> | <b>3047.22</b> | <b>-2742.97</b> |

### Capital Cost for the 2019-24 tariff period

86. Accordingly, the capital cost considered for the 2019-24 tariff period in respect of the transmission assets is as follows:

(₹ in lakh)

| Assets       | Total Capital Cost as on 1.4.2019 | 2019-20        | 2020-21       | 2021-22         | 2022-23       | 2023-24        | Total Capital Cost as on 31.3.2024 |
|--------------|-----------------------------------|----------------|---------------|-----------------|---------------|----------------|------------------------------------|
| Asset-I      | 80842.16                          | 4664.48        | 7805.98       | 21429.24        | 0.00          | 0.00           | 114741.86                          |
| Asset-II     | 59889.34                          | 476.07         | -7180.20      | 338.22          | 575.72        | 3047.22        | 57146.37                           |
| <b>Total</b> | <b>140731.50</b>                  | <b>5140.55</b> | <b>625.78</b> | <b>21767.46</b> | <b>575.72</b> | <b>3047.22</b> | <b>171888.23</b>                   |

### Adjustments to Equity

87. The COD of the transmission asset was 1.4.1992. The debt-equity ratio as on COD was 50:50. The useful life of the transmission assets is 30 years. Thus, Asset-I has completed its useful life on 31.3.2021 and Asset-II completed its useful life on 31.3.2022. The first proviso to Regulation 18(3) of the 2019 Tariff Regulations provides that in case of a transmission project including communication system which has completed its useful life on or after 1.4.2019, and if the actual equity actually deployed as on 1.4.2019 is more than 30% of the capital cost, then the equity shall be restricted to 30% of the total equity deployed. Regulation 18(3) of the 2019 Tariff Regulations provides as follows:



**“18. Debt-Equity Ratio:**

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, debt: equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2019 shall be considered:

Provided that in case of a generating station or a transmission system including communication system which has completed its useful life as on or after 1.4.2019, if the equity actually deployed as on 1.4.2019 is more than 30% of the capital cost, equity in excess of 30% shall not be taken into account for tariff computation;

Provided further that in case of projects owned by Damodar Valley Corporation, the debt: equity ratio shall be governed as per sub-clause (ii) of clause (2) of Regulation 72 of these regulations.”

88. The equity deployed is more than 30% in respect of the transmission assets as on 1.4.2019. Therefore, as per the first proviso to Regulation 18(3) of the 2019 Tariff Regulations, equity with effect from 1.4.2021 and 1.4.2022 onwards has been restricted to 30% for Asset-I and Asset-II respectively. Accordingly, the equity as on 1.4.2022 is allowed as follows:

| (₹ in lakh) |   |          |
|-------------|---|----------|
| Assets      | Particulars                                 | Amount   |
| Asset-I     | Closing capital cost as on 31.3.2021        | 93312.62 |
|             | Closing equity as on 31.3.2021 (A)          | 40646.50 |
|             | Equity in excess of 30% of Capital Cost (B) | 12652.72 |
|             | Equity admissible as on 1.4.2021 (A)-(B)    | 27993.79 |
| Asset-II    | Closing capital cost as on 31.3.2022        | 53523.43 |
|             | Closing equity as on 31.3.2022 (A)          | 24881.55 |
|             | Equity in excess of 30% of Capital Cost (B) | 8824.52  |
|             | Equity admissible as on 1.4.2022 (A)-(B)    | 16057.03 |

**Debt-Equity ratio**

89. Regulation 18 of the 2019 Tariff Regulations provides as follows:

**“18. Debt-Equity Ratio:** (1) For new projects, the debt-equity ratio of 70:30 as on date of commercial operation shall be considered. 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 utilised for meeting the capital expenditure of the generating station or the transmission system.

(2) The generating company or the transmission licensee, as the case may be, shall submit the resolution of the Board of the company or approval of the competent authority in other cases regarding infusion of funds 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 1.4.2019, debt: equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2019 shall be considered:

Provided that in case of a generating station or a transmission system including communication system which has completed its useful life as on or after 1.4.2019, if the equity actually deployed as on 1.4.2019 is more than 30% of the capital cost, equity in excess of 30% shall not be taken into account for tariff computation;

Provided further that in case of projects owned by Damodar Valley Corporation, the debt: equity ratio shall be governed as per sub-clause (ii) of clause (2) of Regulation 72 of these regulations.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2019, the Commission shall approve the debt: equity ratio in accordance with clause (1) of this Regulation.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2019 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this Regulation.

(6) Any expenditure incurred for the emission control system during the tariff period as may be admitted by the Commission as additional capital expenditure for determination of supplementary tariff, shall be serviced in the manner specified in clause (1) of this Regulation.”

90. The details of debt-equity considered for the purpose of determination of tariff of 2019-24 tariff period are as follows:

**(A) Debt-equity for capital cost as on 1.4.2019**

| Assets  | Funding | Capital Cost as on 1.4.2019<br>(₹ in lakh) | (in %) |
|---------|---------|--|--------|
| Asset-I | Debt    | 43843.86                                   | 54.23  |
|         | Equity  | 36998.30                                   | 45.77  |





| Assets   | Funding      | Capital Cost as on 1.4.2019<br>(₹ in lakh) | (in %)        |
|----------|--------------|--|---------------|
|          | <b>Total</b> | <b>80842.16</b>                            | <b>100.00</b> |
| Asset-II | Debt         | 31768.51                                   | 53.05         |
|          | Equity       | 28120.84                                   | 46.95         |
|          | <b>Total</b> | <b>59889.34</b>                            | <b>100.00</b> |

**(B) Debt-equity for ACE and de-capitalisation during the 2019-24 period**

**Asset-I**

| Particulars  | ACE                    |               | De-capitalisation      |               | ACE                    |               | De-capitalisation      |               |
|--------------|------------------------|---------------|------------------------|---------------|------------------------|---------------|------------------------|---------------|
|              | 2019-20<br>(₹ in lakh) | (in %)        | 2019-20<br>(₹ in lakh) | (in %)        | 2020-21<br>(₹ in lakh) | (in %)        | 2020-21<br>(₹ in lakh) | (in %)        |
| Debt         | 3286.68                | 70.00         | 15.94                  | 51.79         | 5799.87                | 70.00         | 248.36                 | 51.79         |
| Equity       | 1408.58                | 30.00         | 14.84                  | 48.21         | 2485.66                | 30.00         | 231.19                 | 48.21         |
| <b>Total</b> | <b>4695.26</b>         | <b>100.00</b> | <b>30.78</b>           | <b>100.00</b> | <b>8285.53</b>         | <b>100.00</b> | <b>479.55</b>          | <b>100.00</b> |

| Particulars  | ACE                    |               | De-capitalisation      |               | ACE                    |          | De-capitalisation      |          |
|--------------|------------------------|---------------|------------------------|---------------|------------------------|----------|------------------------|----------|
|              | 2021-22<br>(₹ in lakh) | (in %)        | 2021-22<br>(₹ in lakh) | (in %)        | 2022-23<br>(₹ in lakh) | (in %)   | 2022-23<br>(₹ in lakh) | (in %)   |
| Debt         | 18570.10               | 70.00         | 2641.02                | 51.79         | -                      | -        | -                      | -        |
| Equity       | 7958.62                | 30.00         | 2458.46                | 48.21         | -                      | -        | -                      | -        |
| <b>Total</b> | <b>26528.72</b>        | <b>100.00</b> | <b>5099.48</b>         | <b>100.00</b> | <b>-</b>               | <b>-</b> | <b>-</b>               | <b>-</b> |

**Asset-II**

| Particulars  | ACE                    |               | De-capitalisation      |               | ACE                    |               | De-capitalisation      |               |
|--------------|------------------------|---------------|------------------------|---------------|------------------------|---------------|------------------------|---------------|
|              | 2019-20<br>(₹ in lakh) | (in %)        | 2019-20<br>(₹ in lakh) | (in %)        | 2020-21<br>(₹ in lakh) | (in %)        | 2020-21<br>(₹ in lakh) | (in %)        |
| Debt         | 337.22                 | 70.00         | 2.94                   | 51.79         | 78.35                  | 70.00         | 3776.59                | 51.79         |
| Equity       | 144.52                 | 30.00         | 2.73                   | 48.21         | 33.58                  | 30.00         | 3515.54                | 48.21         |
| <b>Total</b> | <b>481.74</b>          | <b>100.00</b> | <b>5.67</b>            | <b>100.00</b> | <b>111.93</b>          | <b>100.00</b> | <b>7292.13</b>         | <b>100.00</b> |

| Particulars  | ACE                    |               | De-capitalisation      |               | ACE                    |               | De-capitalisation      |               |
|--------------|------------------------|---------------|------------------------|---------------|------------------------|---------------|------------------------|---------------|
|              | 2021-22<br>(₹ in lakh) | (in %)        | 2021-22<br>(₹ in lakh) | (in %)        | 2022-23<br>(₹ in lakh) | (in %)        | 2022-23<br>(₹ in lakh) | (in %)        |
| Debt         | 239.00                 | 70.00         | 1.66                   | 51.79         | 412.71                 | 70.00         | 7.18                   | 48.21         |
| Equity       | 102.43                 | 30.00         | 1.55                   | 48.21         | 176.87                 | 30.00         | 6.68                   | 51.79         |
| <b>Total</b> | <b>341.43</b>          | <b>100.00</b> | <b>3.21</b>            | <b>100.00</b> | <b>589.58</b>          | <b>100.00</b> | <b>13.86</b>           | <b>100.00</b> |

| Particulars | ACE                    |        | De-capitalisation      |        |
|-------------|------------------------|--------|------------------------|--------|
|             | 2023-24<br>(₹ in lakh) | (in %) | 2023-24<br>(₹ in lakh) | (in %) |
| Debt        | 2341.99                | 70.00  | 154.58                 | 48.21  |
| Equity      | 1003.71                | 30.00  | 143.90                 | 51.79  |



| Particulars  | ACE                    |               | De-capitalisation      |               |
|--------------|------------------------|---------------|------------------------|---------------|
|              | 2023-24<br>(₹ in lakh) | (in %)        | 2023-24<br>(₹ in lakh) | (in %)        |
| <b>Total</b> | <b>3345.70</b>         | <b>100.00</b> | <b>298.48</b>          | <b>100.00</b> |

## **Depreciation**

91. Regulation 33 of the 2019 Tariff Regulations provides as follows:

**"33. Depreciation:** (1) *Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system or element thereof including communication system. 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:*

*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 a 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 the salvage value for IT equipment and software shall be considered as NIL and 100% value of the asset shall be considered depreciable;*

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

*Provided also that the capital cost of the asset 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 unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life or 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-I to these regulations for the asset 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 asset.*

*(6) In case of the existing projects, the balance depreciable value as on 1.4.2019 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.3.2019 from the gross depreciable value of the asset.*

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

*(8) In case of de-capitalization of asset 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.*

*(9) Where the emission control system is implemented within the original scope of the generating station and the date of commercial operation of the generating station or unit thereof and the date of operation of the emission control system are the same, depreciation of the generating station or unit thereof including the emission control system shall be computed in accordance with Clauses (1) to (8) of this Regulation.*

*(10) Depreciation of the emission control system of an existing or a new generating station or unit thereof where the date of operation of the emission control system is subsequent to the date of commercial operation of the generating station or unit thereof, shall be computed annually from the date of operation of such emission control system based on straight line method, with salvage value of 10%, over a period of-*

- a) twenty five years, in case the generating station or unit thereof is in operation for fifteen years or less as on the date of operation of the emission control system; or*
- b) balance useful life of the generating station or unit thereof plus fifteen years, in case the generating station or unit thereof is in operation for more than fifteen years as on the date of operation of the emission control system; or*
- c) ten years or a period mutually agreed by the generating company and the beneficiaries, whichever is higher, in case the generating station or unit thereof has completed its useful life."*

92. The depreciation has been worked out considering the admitted capital expenditure as on 31.3.2019 and accumulated depreciation up to 31.3.2019. The transmission project has already completed more than 12 years before 1.4.2019. Accordingly, depreciation has been calculated based on the remaining depreciable value (up to 90% of existing gross block of assets) to be recovered over the balance useful life. However, depreciation for ACE (new additions) allowed during fag end of the



transmission project has been computed at normative rate of depreciation as specified in the 2019 Tariff Regulations:

(₹ in lakh)

| <b>Asset-I (Existing assets)</b>                     |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>                                   | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Opening Gross Block                                  | 80842.16       | 80811.38       | 80331.83       | 75232.35       | 75232.3        |
| ACE  | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Decapitalisation                                     | 30.78          | 479.55         | 5099.48        | 0.00           | 0.00           |
| Closing Gross Block                                  | 80811.38       | 80331.83       | 75232.35       | 75232.35       | 75232.3        |
| Average Gross Block                                  | 80826.77       | 80571.61       | 77782.09       | 75232.35       | 75232.3        |
| Freehold Land  | 399.06         | 399.06         | 399.06         | 399.06         | 399.06         |
| Weighted average rate of Depreciation (WAROD) (in %) | 4.43           | 4.69           | NA             | NA             | NA             |
| Depreciable Value                                    | 72384.94       | 72155.29       | 67349.96       | 67349.96       | 67349.9        |
| Cumulative Depreciation at the Beginning of the year | 65257.10       | 68807.17       | 72155.29       | 67565.77       | 67565.7        |
| Less: Dep adjustment on a/c of decapitalisation      | 27.70          | 431.60         | 4589.52        | 0.00           | 0.00           |
| Balance useful life of the asset (year)              | 2              | 1              | 0              | 0              | 0              |
| Elapsed life (year)                                  | 28             | 29             | 30             | 30             | 30             |
| <b>Depreciation</b>                                  | <b>3577.77</b> | <b>3779.72</b> | <b>0.00</b>    | <b>0.00</b>    | <b>0.00</b>    |
| Remaining Depreciable Value at the end of the year   | 3779.72        | 0.00           | 0.00           | 0.00           | 0.00           |

(₹ in lakh)

| <b>Asset-I (New additions)</b>                            |                |                |                |                |                |
|---|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>  | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Opening Gross Block                                       | 0.00           | 4695.26        | 12980.79       | 39509.51       | 39509.51       |
| Additional Capitalisation                                 | 4695.26        | 8285.53        | 26528.72       | 0.00           | 0.00           |
| Closing Gross Block                                       | 4695.26        | 12980.79       | 39509.51       | 39509.51       | 39509.51       |
| Average Gross Block                                       | 2347.63        | 8838.03        | 26245.15       | 39509.51       | 39509.51       |
| Weighted average rate of Depreciation (WAROD) (in %)      | 5.28           | 5.28           | 5.28           | 5.28           | 5.28           |
| Depreciable Value   | 2112.87        | 7954.22        | 23620.64       | 35558.56       | 35558.56       |
| Cumulative Depreciation at the beginning of the year      | 0.00           | 123.95         | 590.60         | 1976.35        | 4062.45        |
| <b>Depreciation</b>                                       | <b>123.95</b>  | <b>466.65</b>  | <b>1385.74</b> | <b>2086.10</b> | <b>2086.10</b> |
| Cumulative Depreciation at the end of the year            | 123.95         | 590.60         | 1976.35        | 4062.45        | 6148.55        |
| Remaining Depreciation recoverable at the end of the year | 1988.91        | 7363.62        | 21644.29       | 31496.11       | 29410.01       |

(₹ in lakh)

| <b>Asset-II (Existing assets)</b> |                |                |                |                |                |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>                | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Opening Gross Block               | 59889.34       | 59883.67       | 52591.54       | 52588.33       | 52574.4        |



| <b>Asset-II (Existing assets)</b>                    |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>                                   | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| ACE  | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Decapitalisation                                     | 5.67           | 7292.13        | 3.21           | 13.86          | 298.48         |
| Closing Gross Block                                  | 59883.67       | 52591.54       | 52588.33       | 52574.47       | 52275.9        |
| Average Gross Block                                  | 59886.51       | 56237.61       | 52589.94       | 52581.40       | 52425.2        |
| Freehold Land  | 580.96         | 580.96         | 580.96         | 580.96         | 580.96         |
| Weighted average rate of Depreciation (WAROD) (in %) | 2.55%          | 5.63%          | 0.01%          | 0.00%          | 0.00%          |
| Depreciable Value                                    | 53374.99       | 50090.98       | 46808.08       | 46800.40       | 46659.8        |
| Cumulative Depreciation at the Beginning of the year | 48794.98       | 50318.25       | 46923.15       | 46808.08       | 46445.6        |
| Less: Dep adjustment on a/c of decapitalisation      | 5.10           | 6562.92        | 119.20         | 362.40         | 384.94         |
| Balance useful life of the asset (year)              | 3              | 2              | 1              | 0              | -1             |
| Elapsed life (year)                                  | 27             | 28             | 29             | 30             | 31             |
| <b>Depreciation</b>                                  | <b>1528.37</b> | <b>3167.83</b> | <b>4.12</b>    | <b>0.00</b>    | <b>0.00</b>    |
| Remaining Depreciable Value at the end of the year   | 3056.74        | 3167.83        | 0.00           | 0.00           | 0.00           |

(₹ in lakh)

| <b>Asset-II (New additions)</b>                           |                |                |                |                |                |
|---|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>  | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Opening Gross Block                                       | 0.00           | 481.74         | 593.67         | 935.10         | 1524.68        |
| Additional Capitalisation                                 | 481.74         | 111.93         | 341.43         | 589.58         | 3345.70        |
| Closing Gross Block                                       | 481.74         | 593.67         | 935.10         | 1524.68        | 4870.38        |
| Average Gross Block                                       | 240.87         | 537.71         | 764.39         | 1229.89        | 3197.53        |
| Weighted average rate of Depreciation (WAROD) (in %)      | 5.28           | 5.28           | 5.28           | 5.28           | 5.28           |
| Depreciable Value   | 216.78         | 483.93         | 687.95         | 1106.90        | 2877.78        |
| Cumulative Depreciation at the beginning of the year      | 0.00           | 12.72          | 41.11          | 81.47          | 146.41         |
| <b>Depreciation</b>                                       | <b>12.72</b>   | <b>28.39</b>   | <b>40.36</b>   | <b>64.94</b>   | <b>168.83</b>  |
| Cumulative Depreciation at the end of the year            | 12.72          | 41.11          | 81.47          | 146.41         | 315.24         |
| Remaining Depreciation recoverable at the end of the year | 204.07         | 442.83         | 606.48         | 960.49         | 2562.54        |

93. The depreciation allowed for the 2019-24 tariff period is as follows:

| <b>(₹ in lakh)</b> |                                  |                |                |                |                |                |
|--------------------|----------------------------------|----------------|----------------|----------------|----------------|----------------|
| <b>Assets</b>      | <b>Particulars</b>               | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Asset-I            | Depreciation for existing assets | 3577.77        | 3779.72        | 0.00           | 0.00           | 0.00           |
|                    | Depreciation for new assets      | 123.95         | 466.65         | 1385.74        | 2086.10        | 2086.10        |
|                    | <b>Total Depreciation</b>        | <b>3701.72</b> | <b>4246.37</b> | <b>1385.74</b> | <b>2086.10</b> | <b>2086.10</b> |
| Asset-II           | Depreciation for existing assets | 1528.37        | 3167.83        | 4.12           | 0.00           | 0.00           |



| Assets | Particulars                 | 2019-20        | 2020-21        | 2021-22      | 2022-23      | 2023-24       |
|--------|-----------------------------|----------------|----------------|--------------|--------------|---------------|
|        | Depreciation for new assets | 12.72          | 28.39          | 40.36        | 64.94        | 168.83        |
|        | <b>Total Depreciation</b>   | <b>1541.09</b> | <b>3196.22</b> | <b>44.48</b> | <b>64.94</b> | <b>168.83</b> |

### **Interest on Loan (“IoL”)**

94. Regulation 32 of the 2019 Tariff Regulations provides as follows:

**“32. Interest on loan capital:** (1) *The loans arrived at in the manner indicated in regulation 18 of these regulations shall be considered as gross normative loan for calculation of interest on loan.*

(2) *The normative loan outstanding as on 1.4.2019 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2019 from the gross normative loan.*

(3) *The repayment for each of the year of the tariff period 2019-24 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-capitalisation 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.*

(5a) *The rate of interest on loan for installation of emission control system shall be the weighted average rate of interest of actual loan portfolio of the emission control system or in the absence of actual loan portfolio, the weighted average rate of interest of the generating company 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 changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.”*

95. The weighted average rate of IoL has been considered on the basis of rate prevailing as on 1.4.2019. The Petitioner has prayed that the change in interest rate due



to floating rate of interest applicable, if any, during 2019-24 tariff period will be adjusted. Accordingly, the floating rate of interest, if any, shall be considered at the time of true-up. Therefore, IoL has been allowed in accordance with Regulation 32 of the 2019 Tariff Regulations. The details of the IoL approved for the transmission assets for the 2019-24 tariff period are as follows:

(₹ in lakh)

| <b>Asset-I (Existing Assets)</b>                                     |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>   | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Gross Normative Loan   | 43843.86       | 43827.92       | 43579.56       | 40938.54       | 40938.54       |
| Cumulative Repayments upto Previous Year                             | 43627.01       | 43827.92       | 43579.56       | 40938.54       | 40938.54       |
| Net Loan-Opening   | 216.85         | 0.00           | 0.00           | 0.00           | 0.00           |
| Additions  | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Decapitalisation   | 15.94          | 248.36         | 2641.02        | 0.00           | 0.00           |
| Repayment during the year  | 3577.77        | 3779.72        | 0.00           | 0.00           | 0.00           |
| Adjustment of Cumulative Repayment Pertaining to decapitalised asset | 15.94          | 248.36         | 2641.02        | 0.00           | 0.00           |
| Net Loan-Closing   | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Average Loan   | 108.43         | 0.00           | 0.00           | 0.00           | 0.00           |
| Weighted Average Rate of Interest on Loan (in %)                     | 7.9392         | 7.4932         | 7.2815         | 7.2578         | 7.2266         |
| <b>Interest on Loan</b>  | <b>8.61</b>    | <b>0.00</b>    | <b>0.00</b>    | <b>0.00</b>    | <b>0.00</b>    |

(₹ in lakh)

| <b>Asset-I (New Assets)</b>                      |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>                               | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Gross Normative Loan                             | 0.00           | 3286.68        | 9086.55        | 27656.66       | 27656.66       |
| Cumulative Repayments upto Previous Year         | 0.00           | 123.95         | 590.60         | 1976.35        | 4062.45        |
| Net Loan-Opening                                 | 0.00           | 3162.73        | 8495.95        | 25680.31       | 23594.21       |
| Additions  | 3286.68        | 5799.87        | 18570.10       | 0.00           | 0.00           |
| Repayment during the year                        | 123.95         | 466.65         | 1385.74        | 2086.10        | 2086.10        |
| Net Loan-Closing                                 | 3162.73        | 8495.95        | 25680.31       | 23594.21       | 21508.11       |
| Average Loan                                     | 1581.36        | 5829.34        | 17088.13       | 24637.26       | 22551.16       |
| Weighted Average Rate of Interest on Loan (in %) | 7.9392         | 7.4932         | 7.2815         | 7.2578         | 7.2266         |
| <b>Interest on Loan</b>                          | <b>125.55</b>  | <b>436.80</b>  | <b>1244.27</b> | <b>1788.13</b> | <b>1629.69</b> |

(₹ in lakh)

| <b>Asset-II (Existing Assets)</b>        |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>                       | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Gross Normative Loan                     | 31768.51       | 31765.58       | 27988.98       | 27987.32       | 27980.14       |
| Cumulative Repayments upto Previous Year | 31768.51       | 31765.58       | 27988.98       | 27987.32       | 27980.14       |



|  |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|
| Net Loan-Opening   | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Additions  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Decapitalisation   | 2.94        | 3776.59     | 1.66        | 7.18        | 154.58      |
| Repayment during the year  | 1528.37     | 3167.83     | 4.12        | 0.00        | 0.00        |
| Adjustment of Cumulative Repayment Pertaining to decapitalised asset | 2.94        | 3776.59     | 1.66        | 7.18        | 154.58      |
| Net Loan-Closing   | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Average Loan   | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| Weighted Average Rate of Interest on Loan (in %)                     | 7.8692      | 7.7433      | 7.6501      | 7.6295      | 7.5993      |
| <b>Interest on Loan</b>  | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |

(₹ in lakh)

| Asset-II (New Assets)                            |              |              |              |              |               |
|--|--------------|--------------|--------------|--------------|---------------|
| Particulars                                      | 2019-20      | 2020-21      | 2021-22      | 2022-23      | 2023-24       |
| Gross Normative Loan                             | 0.00         | 337.22       | 415.57       | 654.57       | 1067.28       |
| Cumulative Repayments upto Previous Year         | 0.00         | 12.72        | 41.11        | 81.47        | 146.41        |
| Net Loan-Opening                                 | 0.00         | 324.50       | 374.46       | 573.10       | 920.87        |
| Additions  | 337.22       | 78.35        | 239.00       | 412.71       | 2341.99       |
| Repayment during the year                        | 12.72        | 28.39        | 40.36        | 64.94        | 168.83        |
| Net Loan-Closing                                 | 324.50       | 374.46       | 573.10       | 920.87       | 3094.03       |
| Average Loan                                     | 162.25       | 349.48       | 473.78       | 746.99       | 2007.45       |
| Weighted Average Rate of Interest on Loan (in %) | 7.8692       | 7.7433       | 7.6501       | 7.6295       | 7.5993        |
| <b>Interest on Loan</b>                          | <b>12.77</b> | <b>27.06</b> | <b>36.24</b> | <b>56.99</b> | <b>152.55</b> |

96. IoL allowed for the 2019-24 tariff period is as follows:

(₹ in lakh)

| Assets   | Particulars             | 2019-20       | 2020-21       | 2021-22        | 2022-23        | 2023-24        |
|----------|-------------------------|---------------|---------------|----------------|----------------|----------------|
| Asset-I  | IoL for existing assets | 8.61          | 0.00          | 0.00           | 0.00           | 0.00           |
|          | IoL for new assets      | 125.55        | 436.80        | 1244.27        | 1788.13        | 1629.69        |
|          | <b>Total IoL</b>        | <b>134.16</b> | <b>436.80</b> | <b>1244.27</b> | <b>1788.13</b> | <b>1629.69</b> |
| Asset-II | IoL for existing assets | 0.00          | 0.00          | 0.00           | 0.00           | 0.00           |
|          | IoL for new assets      | 12.77         | 27.06         | 36.24          | 56.99          | 152.55         |
|          | <b>Total IoL</b>        | <b>12.77</b>  | <b>27.06</b>  | <b>36.24</b>   | <b>56.99</b>   | <b>152.55</b>  |

### Return on Equity ("RoE")

97. Regulation 30 and Regulation 31 of the 2019 Tariff Regulations provides as follows:

**"30. Return on Equity:** (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with Regulation 18 of these regulations.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating station, transmission system including communication system and run-of 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 return on equity in respect of Additional Capitalization after cut-off date beyond the original scope excluding Additional Capitalization on account of emission control system, shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or the transmission system or in the absence of actual loan portfolio of the generating station or the transmission system, the weighted average rate of interest of the generating company or the transmission licensee, as the case may be, as a whole shall be considered, subject to ceiling of 14%;*

*Provided further that:*

*i. In case of a new project, the rate of return on equity shall be reduced by 1.00% 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) or Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system based on the report submitted by the respective RLDC;*

*ii. in case of existing generating station, as and when any of the requirements under (i) above of this Regulation are found lacking based on the report submitted by the concerned RLDC, rate of return on equity shall be reduced by 1.00% for the period for which the deficiency continues;*

*iii. in case of a thermal generating station, with effect from 1.4.2020:*

*a) rate of return on equity shall be reduced by 0.25% in case of failure to achieve the ramp rate of 1% per minute;*

*b) an additional rate of return on equity of 0.25% shall be allowed for every incremental ramp rate of 1% per minute achieved over and above the ramp rate of 1% per minute, subject to ceiling of additional rate of return on equity of 1.00%;*

*Provided that the detailed guidelines in this regard shall be issued by National Load Dispatch Centre by 30.6.2019.*

*(3) The return on equity in respect of additional capitalization on account of emission control system shall be computed at the base rate of one year marginal cost of lending rate (MCLR) of the State Bank of India as on 1st April of the year in which the date of operation (ODe) occurs plus 350 basis point, subject to ceiling of 14%;*

**“31. Tax on Return on Equity:***(1) The base rate of return on equity as allowed by the Commission under Regulation 30 of these regulations 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 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 paid on income from other businesses including deferred tax liability (i.e. income from business other than business of generation or transmission, as the case may be) shall be excluded 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:

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

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.

**Illustration-**

(i) In case of a generating company or a transmission licensee paying Minimum Alternate Tax (MAT) @ 21.55% including surcharge and cess:

$$\text{Rate of return on equity} = 15.50 / (1 - 0.2155) = 19.758\%$$

(ii) In case of a generating company or a transmission licensee paying normal corporate tax including surcharge and cess:

- (a) Estimated Gross Income from generation or transmission business for FY 2019-20 is Rs 1,000 crore;
- (b) Estimated Advance Tax for the year on above is Rs 240 crore;
- (c) Effective Tax Rate for the year 2019-20 = Rs 240 Crore / Rs 1000 Crore = 24%;
- (d) Rate of return on equity =  $15.50 / (1 - 0.24) = 20.395\%$ .

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2019-24 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee, as the case may be. Any under-recovery or over-recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term customers, as the case may be, on year to year basis.”

98. The Petitioner has submitted that MAT rate is applicable to the Petitioner's company. Further, the Asset-I has completed its useful life in 2020-21. Equity from 2021-22 onwards has been restricted to 30% as per proviso to Regulation 18(3) of the 2019 Tariff Regulations. Further, the Asset-II has completed its useful life in 2021-22. Equity from 2022-23 onwards has been restricted to 30% as per proviso to Regulation 18(3) of the 2019 Tariff Regulations. The MAT rate applicable in 2019-20 has been considered for the purpose of RoE, which shall be trued up with actual tax rate in



accordance with Regulation 31(3) of the 2019 Tariff Regulations. RoE allowed for the transmission assets is as follows:

(₹ in lakh)

| <b>Asset-I</b>                                     |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>                                 | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Opening Equity                                     | 36998.30       | 38392.04       | 40646.50       | 33493.94       | 33493.94       |
| Equity in excess of 30% removed                    | 0.00           | 0.00           | 12652.72       | 0.00           | 0.00           |
| Opening Equity                                     | 36998.30       | 38392.04       | 27993.79       | 33493.94       | 33493.94       |
| Additions  | 1408.58        | 2485.66        | 7958.62        | 0.00           | 0.00           |
| Decrease due to decapitalisation during the period | 14.84          | 231.19         | 2458.46        | 0.00           | 0.00           |
| Closing Equity                                     | 38392.04       | 40646.50       | 33493.94       | 33493.94       | 33493.94       |
| Average Equity                                     | 37695.17       | 39519.27       | 30743.86       | 33493.94       | 33493.94       |
| Return on Equity (Base Rate) (in %)                | 15.500         | 15.500         | 15.500         | 15.500         | 15.500         |
| MAT Rate for respective year (in %)                | 17.472         | 17.472         | 17.472         | 17.472         | 17.472         |
| Rate of Return on Equity (in %)                    | 18.782         | 18.782         | 18.782         | 18.782         | 18.782         |
| <b>Return on Equity</b>                            | <b>7079.91</b> | <b>7422.51</b> | <b>5774.31</b> | <b>6290.83</b> | <b>6290.83</b> |

(₹ in lakh)

| <b>Asset-II</b>                                    |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>                                 | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Opening Equity                                     | 28120.84       | 28262.62       | 24780.67       | 24881.55       | 16227.22       |
| Equity in excess of 30% removed                    | 0.00           | 0.00           | 0.00           | 8824.52        | 0.00           |
| Opening Equity                                     | 28120.84       | 28262.62       | 24780.67       | 16057.03       | 16227.22       |
| Additions  | 144.52         | 33.58          | 102.43         | 176.87         | 1003.71        |
| Decrease due to decapitalisation during the period | 2.73           | 3515.54        | 1.55           | 6.68           | 143.90         |
| Closing Equity                                     | 28262.62       | 24780.67       | 24881.55       | 16227.22       | 17087.03       |
| Average Equity                                     | 28191.73       | 26521.65       | 24831.11       | 16142.13       | 16657.13       |
| Return on Equity (Base Rate) (in %)                | 15.500         | 15.500         | 15.500         | 15.500         | 15.500         |
| MAT Rate for respective year (in %)                | 17.472         | 17.472         | 17.472         | 17.472         | 17.472         |
| Rate of Return on Equity (in %)                    | 18.782         | 18.782         | 18.782         | 18.782         | 18.782         |
| <b>Return on Equity</b>                            | <b>5294.97</b> | <b>4981.30</b> | <b>4663.78</b> | <b>3031.81</b> | <b>3128.54</b> |

### **Operation & Maintenance Expenses (“O&M Expenses”)**

99. The Petitioner has claimed O&M Expenses under Regulation 35(3) of the 2014 Tariff Regulations in respect of the transmission assets as follows:

| <b>Asset-I</b>                          |                |                |                |                |                |
|---|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>                      | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| <b>Rihand-Dadri HVDC Bi-pole scheme</b> |                |                |                |                |                |
| Number                                  | 1              | 1              | 1              | 1              | 1              |
| Norms (₹ in lakh)                       | 2252.00        | 2331.00        | 2413.00        | 2498.00        | 2586.00        |



| Asset-I  |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Sub-total HVDC O&amp;M Expenses (₹ in lakh)</b>                                     | <b>2252.00</b> | <b>2331.00</b> | <b>2413.00</b> | <b>2498.00</b> | <b>2586.00</b> |
| <b>Line: Rihand-Dadri HVDC (D/C-Bundle Conductor with four sub-conductors)</b>         |                |                |                |                |                |
| Line Length (km)   | 815            | 815            | 815            | 815            | 815            |
| Norms (₹ lakh/km)  | 1.322          | 1.368          | 1.416          | 1.466          | 1.517          |
| <b>Line: Dadri-Dankaur &amp; Dadri-Chapki 132 kV lines (S/C-Twin/Triple Conductor)</b> |                |                |                |                |                |
| Line Length (km)   | 52             | 52             | 52             | 52             | 52             |
| Norms (₹ lakh/km)  | 0.503          | 0.521          | 0.539          | 0.558          | 0.578          |
| <b>Sub-total transmission line O&amp;M Expenses (₹ in lakh)</b>                        | <b>1103.59</b> | <b>1142.01</b> | <b>1182.07</b> | <b>1223.81</b> | <b>1266.41</b> |
| <b>Total O&amp;M Expenses (₹ in lakh)</b>  | <b>3355.59</b> | <b>3473.01</b> | <b>3595.07</b> | <b>3721.81</b> | <b>3852.41</b> |

| Asset-II   |                 |                 |                 |                 |                 |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Particulars  | 2019-20         | 2020-21         | 2021-22         | 2022-23         | 2023-24         |
| <b>Sub-station Bays (400 kV)</b>   |                 |                 |                 |                 |                 |
| Number   | 21              | 21              | 21              | 21              | 21              |
| Norms (₹ in lakh)  | 32.15           | 33.28           | 34.45           | 35.66           | 36.91           |
| <b>Sub-total (a)</b>   | <b>675.15</b>   | <b>698.88</b>   | <b>723.45</b>   | <b>748.86</b>   | <b>775.11</b>   |
| <b>Transformation capacity: Malerkotla 400 kV ICT-I (1x315 MVA) &amp; Panipat 400 kV ICT-II (3x150 MVA)</b>  |                 |                 |                 |                 |                 |
| Capacity (MVA)   | 765             | 765             | 765             | 765             | 765             |
| Norms (₹ lakh/MVA)   | 0.358           | 0.371           | 0.384           | 0.398           | 0.411           |
| <b>Sub-total (b)</b>   | <b>273.87</b>   | <b>283.815</b>  | <b>293.76</b>   | <b>304.47</b>   | <b>314.415</b>  |
| <b>2 numbers ± 140 MVAR SVC at 400/220 kV Kanpur Sub-station</b>   |                 |                 |                 |                 |                 |
| Capital Cost (₹ in lakh)   | 7292.13         | 7292.13         | 0               | 0               | 0               |
| Norms (1.5% of original project cost to be escalated @ 3.51% under Regulation 35(3)(a)(vi))  | 1.5%            | 1.55%           | 0               | 0               | 0               |
| <b>Sub-total (c)</b>   | <b>109.38</b>   | <b>45.29*</b>   | <b>0</b>        | <b>0</b>        | <b>0</b>        |
| <b>Sub-total sub-station O&amp;M Expenses (₹ in lakh) (a+b+c)</b>  | <b>1,058.40</b> | <b>1,027.98</b> | <b>1,017.21</b> | <b>1,053.33</b> | <b>1,089.53</b> |
| <b>Line: Ballabgarh-Dadri (53.40 km) &amp; Dadri-Mandola (46.30 km) 400 kV D/C lines (D/C-Bundle Conductor with four sub-conductors)</b>   |                 |                 |                 |                 |                 |
| Line Length (km)   | 99.70           | 99.70           | 99.70           | 99.70           | 99.70           |
| Norms (₹ lakh/km)  | 1.322           | 1.368           | 1.416           | 1.466           | 1.517           |
| <b>Line: (1) Rihand-Singrauli-I (42.03 km), (2) Singrauli-Rihand-II (43.95 km), (3) Vindhychal-Kanpur-II (398 km), (4) Kanpur-Ballabgarh (380.996 km), (5) Ballabgarh-Jaipur (226 km), (6) Dadri-Malerkotla (297.22 km), (7) Bassi-Heerapura-I (47.76 km) &amp; (8) Bassi-Heerapura-II (48.99 km) 400 kV S/C lines (S/C-Twin/Triple Conductor)</b> |                 |                 |                 |                 |                 |
| Line Length (km)   | 1484.95         | 1484.95         | 1484.95         | 1484.95         | 1484.95         |
| Norms (₹ lakh/km)  | 0.503           | 0.521           | 0.539           | 0.558           | 0.578           |
| <b>Sub-total transmission line O&amp;M Expenses (₹ in lakh)</b>  | <b>878.73</b>   | <b>910.05</b>   | <b>941.56</b>   | <b>974.76</b>   | <b>1009.55</b>  |
| <b>Total O&amp;M Expenses (₹ in lakh)</b>  | <b>1937.14</b>  | <b>1938.03</b>  | <b>1958.77</b>  | <b>2028.09</b>  | <b>2099.07</b>  |

\* pro-rata upto 24.8.2020 for 2020-21 due to discontinuation of SVCs.



100. Regulation 35(3)(a) and Regulation 35(4) of the 2019 Tariff Regulations provides as follows:

**“35 (3) Transmission system:** (a) The following normative operation and maintenance expenses shall be admissible for the transmission system:

| Particulars   | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
|---|---------|---------|---------|---------|---------|
| <b>Norms for sub-station Bays (₹ Lakh per bay)</b>                  |         |         |         |         |         |
| 765 kV  | 45.01   | 46.60   | 48.23   | 49.93   | 51.68   |
| 400 kV  | 32.15   | 33.28   | 34.45   | 35.66   | 36.91   |
| 220 kV  | 22.51   | 23.30   | 24.12   | 24.96   | 25.84   |
| 132 kV and below  | 16.08   | 16.64   | 17.23   | 17.83   | 18.46   |
| <b>Norms for Transformers (₹ Lakh per MVA)</b>                      |         |         |         |         |         |
| 765 kV  | 0.491   | 0.508   | 0.526   | 0.545   | 0.564   |
| 400 kV  | 0.358   | 0.371   | 0.384   | 0.398   | 0.411   |
| 220 kV  | 0.245   | 0.254   | 0.263   | 0.272   | 0.282   |
| 132 kV and below  | 0.245   | 0.254   | 0.263   | 0.272   | 0.282   |
| <b>Norms for AC and HVDC lines (₹ Lakh per km)</b>                  |         |         |         |         |         |
| Single Circuit (Bundled Conductor with six or more sub-conductors)  | 0.881   | 0.912   | 0.944   | 0.977   | 1.011   |
| Single Circuit (Bundled conductor with four sub-conductors)         | 0.755   | 0.781   | 0.809   | 0.837   | 0.867   |
| Single Circuit (Twin & Triple Conductor)                            | 0.503   | 0.521   | 0.539   | 0.558   | 0.578   |
| Single Circuit (Single Conductor)                                   | 0.252   | 0.260   | 0.270   | 0.279   | 0.289   |
| Double Circuit (Bundled conductor with four or more sub-conductors) | 1.322   | 1.368   | 1.416   | 1.466   | 1.517   |
| Double Circuit (Twin & Triple Conductor)                            | 0.881   | 0.912   | 0.944   | 0.977   | 1.011   |
| Double Circuit (Single Conductor)                                   | 0.377   | 0.391   | 0.404   | 0.419   | 0.433   |
| Multi Circuit (Bundled Conductor with four or more sub-conductor)   | 2.319   | 2.401   | 2.485   | 2.572   | 2.662   |
| Multi Circuit (Twin & Triple Conductor)                             | 1.544   | 1.598   | 1.654   | 1.713   | 1.773   |
| <b>Norms for HVDC stations</b>                                      |         |         |         |         |         |
| HVDC Back-to-Back stations (Rs Lakh per 500 MW) (Except Gazuwaka)   | 834     | 864     | 894     | 925     | 958     |
| Gazuwaka HVDC Back-to-Back station (₹ Lakh per 500 MW)              | 1,666   | 1,725   | 1,785   | 1,848   | 1,913   |
| 500 kV Rihand-Dadri HVDC bipole scheme (Rs Lakh) (1500 MW)          | 2,252   | 2,331   | 2,413   | 2,498   | 2,586   |
| ±500 kV Talcher- Kolar HVDC bipole scheme (Rs Lakh) (2000 MW)       | 2,468   | 2,555   | 2,645   | 2,738   | 2,834   |
| ±500 kV Bhiwadi-Balia HVDC bipole scheme (Rs Lakh) (2500 MW)        | 1,696   | 1,756   | 1,817   | 1,881   | 1,947   |
| ±800 kV, Bishwanath-Agra HVDC bipole scheme (Rs Lakh) (3000 MW)     | 2,563   | 2,653   | 2,746   | 2,842   | 2,942   |

Provided that the O&M expenses for the GIS bays shall be allowed as worked out by multiplying 0.70 of the O&M expenses of the normative O&M expenses for bays;



*Provided further that:*

- i. the operation and maintenance expenses for new HVDC bi-pole schemes commissioned after 1.4.2019 for a particular year shall be allowed pro-rata on the basis of normative rate of operation and maintenance expenses of similar HVDC bi-pole scheme for the corresponding year of the tariff period;*
- ii. the O&M expenses norms for HVDC bi-pole line shall be considered as Double Circuit quad AC line;*
- iii. the O&M expenses of  $\pm 500$  kV Mundra-Mohindergarh HVDC bipole scheme (2000 MW) shall be allowed as worked out by multiplying 0.80 of the normative O&M expenses for  $\pm 500$  kV Talchar-Kolar HVDC bi-pole scheme (2000 MW);*
- iv. the O&M expenses of  $\pm 800$  kV Champa-Kurukshetra HVDC bi-pole scheme (3000 MW) shall be on the basis of the normative O&M expenses for  $\pm 800$  kV, Bishwanath-Agra HVDC bi-pole scheme;*
- v. the O&M expenses of  $\pm 800$  kV, Alipurduar-Agra HVDC bi-pole scheme (3000 MW) shall be allowed as worked out by multiplying 0.80 of the normative O&M expenses for  $\pm 800$  kV, Bishwanath-Agra HVDC bi-pole scheme; and*
- vi. the O&M expenses of Static Synchronous Compensator and Static Var Compensator shall be worked at 1.5% of original project cost as on commercial operation which shall be escalated at the rate of 3.51% to work out the O&M expenses during the tariff period. The O&M expenses of Static Synchronous Compensator and Static Var Compensator, if required, may be reviewed after three year*

*(b) The total allowable operation and maintenance expenses for the transmission system shall be calculated by multiplying the number of sub-station bays, transformer capacity of the transformer (in MVA) and km of line length with the applicable norms for the operation and maintenance expenses per bay, per MVA and per km respectively.*

*(c) The Security Expenses and Capital Spares for transmission system shall be allowed separately after prudence check:*

*Provided that the transmission licensee shall submit the assessment of the security requirement and estimated security expenses, the details of year-wise actual capital spares consumed at the time of truing up with appropriate justification.*

**(4) Communication system:** *The operation and maintenance expenses for the communication system shall be worked out at 2.0% of the original project cost related to such communication system. The transmission licensee shall submit the actual operation and maintenance expenses for truing up.”*

101. We have considered the submissions of the Petitioner. For computation of O&M Expenses for SSC, we have considered the capital cost as on COD as submitted by the Petitioner. The details of O&M Expenses allowed under Regulation 35(3)(a) of the 2019 Tariff Regulations for the purpose of tariff for 2019-24 tariff period is as follows:

(₹ in lakh)



| Asset-I  |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| Particulars  | 2019-20        | 2020-21        | 2021-22        | 2022-23        | 2023-24        |
| Rihand- Dadri HVDC Bipole Scheme   | 2252.00        | 2331.00        | 2413.00        | 2498.00        | 2586.00        |
| Rihand-Dadri HVDC Bipole Line (D/C - Bundled Conductor with four sub-conductors) (length 815 km) | 1077.43        | 1114.92        | 1154.04        | 1194.79        | 1236.36        |
| 132 kV Lines (S/C- Twin/ Triple Conductor) (2 Numbers of total length 52 km)                     | 26.16          | 27.09          | 28.03          | 29.02          | 30.06          |
| <b>Total O&amp;M Expenses</b>  | <b>3355.59</b> | <b>3473.01</b> | <b>3595.07</b> | <b>3721.81</b> | <b>3852.41</b> |

(₹ in lakh)

| Asset-II   |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| Particulars  | 2019-20        | 2020-21        | 2021-22        | 2022-23        | 2023-24        |
| 400 kV Sub-station bays (21 Numbers)   | 675.15         | 698.88         | 723.45         | 748.86         | 775.11         |
| 400 kV ICTs (2 Numbers of Total capacity 765 MVA)  | 273.87         | 283.82         | 293.76         | 304.47         | 314.42         |
| 400 kV S/C Lines (S/C-Twin/Triple Conductor) (8 Numbers of Total length 1484.946 km)                   | 746.93         | 773.66         | 800.39         | 828.60         | 858.30         |
| 400 kV D/C Lines (D/C- Bundle Conductor with four sub-conductors) (2 Numbers of Total length 99.70 km) | 131.80         | 136.39         | 141.18         | 146.16         | 151.24         |
| Static Var Compensator (SVC) (SVC-1&2 at Kanpur upto 24.8.2020 of ₹7292.13 lakh)                       | 109.38         | 45.29          | 0.00           | 0.00           | 0.00           |
| <b>Total O&amp;M Expenditure</b>   | <b>1937.13</b> | <b>1938.03</b> | <b>1958.77</b> | <b>2028.09</b> | <b>2099.07</b> |

### **Interest on Working Capital (“IWC”)**

102. Regulation 34(1)(c), Regulation 34(3), Regulation 34(4) and Regulation 3(7) of the 2019 Tariff Regulations specifies as follows:

**“34. Interest on Working Capital: (1) The working capital shall cover:**

**(c) For Hydro Generating Station (including Pumped Storage Hydro Generating Station) and Transmission System:**

- i. Receivables equivalent to 45 days of fixed cost;
- ii. Maintenance spares @ 15% of operation and maintenance expenses including security expenses; and
- iii. Operation and maintenance expenses, including security expenses for one month”

(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2019 or as on 1st April of the year during the tariff period 2019-24 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:



*Provided that in case of truing-up, the rate of interest on working capital shall be considered at bank rate as on 1st April of each of the financial year during the tariff period 2019-24.*

*(4) Interest on working capital shall be payable on normative basis notwithstanding that the generating company or the transmission licensee has not taken loan for working capital from any outside agency.*

*“3. Definitions ...*

*(7) ‘Bank Rate’ means the one-year marginal cost of lending rate (MCLR) of the State Bank of India issued from time to time plus 350 basis points;”*

103. The Petitioner has submitted that it has computed IWC for 2019-24 period considering the SBI Base Rate plus 350 basis points as on 1.4.2019. The Petitioner has considered the rate of IWC as 12.05%. IWC is worked out in accordance with Regulation 34 of the 2019 Tariff Regulations. The rate of IWC considered is 12.05% (SBI 1-year MCLR applicable as on 1.4.2019 of 8.55% plus 350 basis points) for 2019-20, 11.25% (SBI 1-year MCLR applicable as on 1.4.2020 of 7.75% plus 350 basis points) for 2020-21 and for 2021-22 onwards, same has been considered as 10.50% (SBI 1-year MCLR applicable as on 1.4.2021 of 7.00% plus 350 basis points). The components of the working capital and interest allowed thereon for the transmission assets are as follows:

(₹ in lakh)

| <b>Asset-I</b>   |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Particulars</b>   | <b>2019-20</b> | <b>2020-21</b> | <b>2021-22</b> | <b>2022-23</b> | <b>2023-24</b> |
| Working Capital for O&M Expenses<br>(Equivalent to annualized O&M Expenses<br>for 1 month)   | 279.63         | 289.42         | 299.59         | 310.15         | 321.03         |
| Working Capital for Maintenance Spares<br>(Equivalent to 15% of O&M Expenses)                | 503.34         | 520.95         | 539.26         | 558.27         | 577.86         |
| Working Capital for Receivables<br>(Equivalent to 45 days of annual<br>transmission charges) | 1792.84        | 1959.07        | 1509.78        | 1745.92        | 1738.02        |
| <b>Total of Working Capital</b>  | <b>2575.81</b> | <b>2769.44</b> | <b>2348.63</b> | <b>2614.34</b> | <b>2636.92</b> |
| Rate of Interest on Working Capital (in %)   | 12.05          | 11.25          | 10.50          | 10.50          | 10.50          |
| <b>Interest on Working Capital</b>   | <b>310.38</b>  | <b>311.56</b>  | <b>246.61</b>  | <b>274.51</b>  | <b>276.88</b>  |





(₹ in lakh)

| Asset-II   |                |                |                |                |                |
|--|----------------|----------------|----------------|----------------|----------------|
| Particulars  | 2019-20        | 2020-21        | 2021-22        | 2022-23        | 2023-24        |
| Working Capital for O&M Expenses (Equivalent to annualized O&M Expenses for 1 month)   | 161.43         | 161.50         | 163.23         | 169.01         | 174.92         |
| Working Capital for Maintenance Spares (Equivalent to 15% of O&M Expenses)             | 290.57         | 290.70         | 293.82         | 304.21         | 314.86         |
| Working Capital for Receivables (Equivalent to 45 days of annual transmission charges) | 1103.28        | 1274.41        | 843.26         | 653.44         | 697.58         |
| <b>Total Working Capital</b>   | <b>1555.28</b> | <b>1726.61</b> | <b>1300.31</b> | <b>1126.66</b> | <b>1187.36</b> |
| Rate of Interest on Working Capital (in %)   | 12.05          | 11.25          | 10.50          | 10.50          | 10.50          |
| <b>Interest on Working Capital</b>   | <b>187.41</b>  | <b>194.24</b>  | <b>136.53</b>  | <b>118.30</b>  | <b>124.67</b>  |

### Annual Fixed Charges (“AFC”) for 2019-24 Tariff Period

104. The transmission charges allowed for the transmission assets for 2019-24 tariff period are as follows:

(₹ in lakh)

| Asset-I                     |                 |                 |                 |                 |                 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Particulars                 | 2019-20         | 2020-21         | 2021-22         | 2022-23         | 2023-24         |
| Depreciation                | 3701.72         | 4246.37         | 1385.74         | 2086.10         | 2086.10         |
| Interest on Loan            | 134.16          | 436.80          | 1244.27         | 1788.13         | 1629.69         |
| Return on Equity            | 7079.91         | 7422.51         | 5774.31         | 6290.83         | 6290.83         |
| Interest on Working Capital | 310.38          | 311.56          | 246.61          | 274.51          | 276.88          |
| O&M Expenses                | 3355.59         | 3473.01         | 3595.07         | 3721.81         | 3852.41         |
| <b>Total</b>                | <b>14581.76</b> | <b>15890.26</b> | <b>12246.00</b> | <b>14161.37</b> | <b>14135.91</b> |

(₹ in lakh)

| Asset-II                    |                |                 |                |                |                |
|-----------------------------|----------------|-----------------|----------------|----------------|----------------|
| Particulars                 | 2019-20        | 2020-21         | 2021-22        | 2022-23        | 2023-24        |
| Depreciation                | 1541.09        | 3196.22         | 44.48          | 64.94          | 168.83         |
| Interest on Loan            | 12.77          | 27.06           | 36.24          | 56.99          | 152.55         |
| Return on Equity            | 5294.97        | 4981.30         | 4663.78        | 3031.81        | 3128.54        |
| O&M Expenses                | 1937.13        | 1938.03         | 1958.77        | 2028.09        | 2099.07        |
| Interest on Working Capital | 187.41         | 194.24          | 136.53         | 118.30         | 124.67         |
| <b>Total</b>                | <b>8973.37</b> | <b>10336.85</b> | <b>6839.81</b> | <b>5300.13</b> | <b>5673.67</b> |

### Filing Fee and the Publication Expenses

105. The Petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses. The Petitioner shall be entitled for reimbursement of the filing fees and publication expenses in connection with the present petition directly from the



beneficiaries on pro-rata basis in accordance with Regulation 70(1) of the 2019 Tariff Regulations.

### **Licence Fee & RLDC Fees and Charges**

106. The Petitioner has sought reimbursement of licence fee in accordance with Regulation 70(4) of the 2019 Tariff Regulations for 2019-24 period. The Petitioner has also sought reimbursement of RLDC fee and charges in accordance with Regulation 70(3) of the 2019 Tariff Regulations for 2019-24 tariff period. The Petitioner shall be entitled for recovery of licence fee and RLDC Fees and Charges in terms of 2019 Tariff Regulations for the 2019-24 tariff period.

### **Goods and Services Tax (GST)**

107. The Petitioner has submitted that if GST is levied at any rate and at any point of time in future on charges of transmission of electricity, the same shall be borne and additionally paid by the Respondent(s) to the Petitioner and the same shall be charged and billed separately by the Petitioner. Further additional taxes, if any, are to be paid by the Petitioner on account of demand from Government / Statutory Authorities, the same may be allowed to be recovered from the beneficiaries.

108. We have considered the submissions of the Petitioner. Since GST is not levied on transmission service at present, we are of the view that the Petitioner's prayer is premature.

### **Security Expenses**

109. The Petitioner has submitted that security expenses for the instant assets are not claimed in the instant petition and it would file a separate petition for claiming the overall security expenses and the consequential IWC.



110. We have considered the submission of the Petitioner. The Petitioner has claimed consolidated security expenses on projected basis for the 2019-24 tariff period on the basis of actual security expenses incurred in 2018-19 in Petition No. 260/MP/2020. The said petition has already been disposed of by the Commission *vide* order dated 3.8.2021. Therefore, security expenses will be shared in terms of the order dated 3.8.2021 in Petition No. 260/MP/2020. Therefore, the Petitioner's prayer in the instant petition for allowing it to file a separate petition for claiming the overall security expenses and consequential IWC has become infructuous.

### **Capital Spares**

111. The Petitioner has sought reimbursement of capital spares at the end of tariff block. The Petitioner's claim, if any, shall be dealt with in accordance with the provisions of the 2019 Tariff Regulations.

### **Sharing of Transmission Charges**

112. With effect from 1.7.2011, sharing of transmission charges for inter-State transmission systems is governed by Central Electricity Regulatory Commission (Sharing of Transmission Charges and Losses) Regulations, 2010 (2010 Sharing Regulations) and with effect from 1.11.2020, sharing is governed by Central Electricity Regulatory Commission (Sharing of Transmission Charges and Losses) Regulations, 2010 (2020 Sharing Regulations). Accordingly, the billing, collection and disbursement of the transmission charges for the 2014-19 tariff period and 2019-24 tariff period shall be governed by the 2010 Sharing Regulations and 2020 Sharing Regulations as provided in Regulation 43 of the 2014 Tariff Regulations and Regulation 57 of the 2019 Tariff Regulations.



113. To summarise:

- a) The trued-up AFC allowed for the transmission assets for the 2014-19 tariff period are as follows:

| (₹ in lakh) |          |          |          |          |          |
|-------------|----------|----------|----------|----------|----------|
| Assets      | 2014-15  | 2015-16  | 2016-17  | 2017-18  | 2018-19  |
| Asset-I     | 10746.02 | 11204.79 | 11983.40 | 13323.10 | 14268.03 |
| Asset-II    | 9314.26  | 9511.84  | 9166.98  | 9283.09  | 9630.15  |

- b) The AFC allowed for the transmission assets for the 2019-24 tariff period in this order are as follows:

| (₹ in lakh) |          |          |          |          |          |
|-------------|----------|----------|----------|----------|----------|
| Assets      | 2019-20  | 2020-21  | 2021-22  | 2022-23  | 2023-24  |
| Asset-I     | 14581.76 | 15890.26 | 12246.00 | 14161.37 | 14135.91 |
| Asset-II    | 8973.37  | 10336.85 | 6839.81  | 5300.13  | 5673.67  |

114. The Annexure-I and Annexure-II given hereinafter form part of the order.

115. This order disposes of Petition No. 78/TT/2021 in terms of the above discussion and findings.

**sd/-**  
**(P. K. Singh)**  
**Member**

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

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



## Asset-I

| 2014-19                                      |   | ACE (₹ in lakh) |               |                |                |               | De-Cap (₹ in lakh) |                |                |  | Depreciation as per Regulations |           |          |          |          |          |
|--|---|-----------------|---------------|----------------|----------------|---------------|--------------------|----------------|----------------|--|---------------------------------|-----------|----------|----------|----------|----------|
| Capital Cost                                 | Capital Cost as on 1.4.2014 / COD (₹ in lakh) | 2014-15         | 2015-16       | 2016-17        | 2017-18        | 2018-19       | 2016-17            | 2017-18        | 2018-19        | Capital Cost as on 31.3.2019 (₹ in lakh) | Rate of Depn.                   | 2014-15   | 2015-16  | 2016-17  | 2017-18  | 2018-19  |
| Land - Freehold                              | 399.06  | -               | -             | -              | -              | -             | -                  | -              | -              | 399.06                                   | -                               | Spreading |          |          |          |          |
| Building Civil Works &                       | 707.52  | -               | -             | -              | -              | -             | -                  | -              | 707.52         | 3.34%                                    |                                 |           |          |          |          |          |
| Transmission Line                            | 32677.69                                      | -               | -             | -              | -              | -             | -                  | -              | 32,677.69      | 5.28%                                    |                                 |           |          |          |          |          |
| Sub Station                                  | 37022.05                                      | 2062.81         | 379.33        | 4534.62        | 3765.25        | 428.30        | -321.60            | -781.76        | -418.70        | 46,670.30                                | 5.28%                           |           |          |          |          |          |
| PLCC   | 387.59  | -               | -             | -              | -              | -             | -                  | -              | -              | 387.59                                   | 6.33%                           |           |          |          |          |          |
| <b>Total</b>                                 | <b>71193.91</b>                               | <b>2062.81</b>  | <b>379.33</b> | <b>4534.62</b> | <b>3765.25</b> | <b>428.30</b> | <b>-321.60</b>     | <b>-781.76</b> | <b>-418.70</b> | <b>80842.16</b>                          | <b>Total</b>                    | 1218.34   | 1401.50  | 1814.81  | 2696.78  | 3380.27  |
| <b>Average Gross Block (₹ in lakh)</b>       |   |                 |               |                |                |               |                    |                |                |  |                                 | 72225.32  | 73446.39 | 75742.56 | 79340.82 | 80837.36 |
| <b>Weighted Average Rate of Depreciation</b> |   |                 |               |                |                |               |                    |                |                |  |                                 | 1.69%     | 1.91%    | 2.40%    | 3.40%    | 4.18%    |



## Asset-II

| 2014-19                                      |   | ACE<br>(₹ in lakh) |               |               |               |               | Decapitalisation<br>(₹ in lakh) |               |               |               |               |  | Depreciation as per Regulations |           |          |          |          |         |
|--|---|--------------------|---------------|---------------|---------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|--|---------------------------------|-----------|----------|----------|----------|---------|
| Capital Cost                                 | Capital Cost as on 1.4.2014 / COD (₹ in lakh) | 2014-15            | 2015-16       | 2016-17       | 2017-18       | 2018-19       | 2014-15                         | 2015-16       | 2016-17       | 2017-18       | 2018-19       | Capital Cost as on 31.3.2019 (₹ in lakh) | Rate of Depn.                   | 2014-15   | 2015-16  | 2016-17  | 2017-18  | 2018-19 |
| Land - Freehold                              | 322.81  | 15.69              | -             | 140.52        | 101.94        | -             | -                               | -             | -             | -             | -             | 580.96                                   | -                               | Spreading |          |          |          |         |
| Land - Leasehold                             | -   | -                  | -             | -             | -             | -             | -                               | -             | -             | -             | -             | -  | 3.34%                           |           |          |          |          |         |
| Building Civil Works & Colony                | 572.33  | -                  | -             | -             | -             | -             | -                               | -             | -             | -             | -             | 572.33                                   | 3.34%                           |           |          |          |          |         |
| Transmission Line                            | 27442.76                                      | -                  | -             | -             | -             | -             | -                               | -             | -             | -             | -             | 27,442.76                                | 5.28%                           |           |          |          |          |         |
| Sub Station                                  | 29988.03                                      | 885.23             | 389.24        | 290.06        | 872.89        | 643.37        | 122.30                          | 757.96        | 740.25        | 319.51        | 149.04        | 30,979.76                                | 5.28%                           |           |          |          |          |         |
| PLCC   | 313.53  | -                  | -             | -             | -             | -             | -                               | -             | -             | -             | -             | 313.53                                   | 6.33%                           |           |          |          |          |         |
| IT Equipment (Incl. Softw                    | 0.00  | -                  | -             | -             | -             | -             | -                               | -             | -             | -             | -             | -  | 15.00%                          |           |          |          |          |         |
| <b>Total</b>                                 | <b>58639.46</b>                               | <b>900.92</b>      | <b>389.24</b> | <b>430.58</b> | <b>974.83</b> | <b>643.37</b> | <b>122.30</b>                   | <b>757.96</b> | <b>740.25</b> | <b>319.51</b> | <b>149.04</b> | <b>59889.34</b>                          | <b>Total</b>                    | 974.39    | 1040.36  | 1029.35  | 1189.19  | 1408.66 |
| <b>Average Gross Block (₹ in lakh)</b>       |   |                    |               |               |               |               |                                 |               |               |               |               |  | 59028.77                        | 59233.72  | 58894.53 | 59067.35 | 59642.18 |         |
| <b>Weighted Average Rate of Depreciation</b> |   |                    |               |               |               |               |                                 |               |               |               |               |  | 1.65%                           | 1.76%     | 1.75%    | 2.01%    | 2.36%    |         |



## Asset-I

| 2019-24<br>Capital Expenditure | Admitted Capital Cost as on 1.4.2019 (₹ in lakh) | Projected De-Capitalisation (₹ in lakh) |               |                | Admitted Capital Cost as on 31.3.2024 (₹ in lakh) | Rate of Depreciation as per Regulations | Annual Depreciation as per Regulations (Post Completion of 12 years of Useful Life) (₹ in lakh) |                 |                 |                 |                 |                 |
|--------------------------------|--|---|---------------|----------------|---|---|---|-----------------|-----------------|-----------------|-----------------|-----------------|
|                                |  | 2019-20                                 | 2020-21       | 2021-22        |   |   | 2019-20   | 2020-21         | 2021-22         | 2022-23         | 2023-24         |                 |
| Land - Freehold                | 399.06   | -                                       | -             | -              | 399.06  | -                                       | Spreading   |                 |                 |                 |                 |                 |
| Land - Leasehold               | -  | -                                       | -             | -              | -   | 3.34%                                   |   |                 |                 |                 |                 |                 |
| Building Civil Works & Colony  | 707.52   | -                                       | -             | -              | 707.52  | 3.34%                                   |   |                 |                 |                 |                 |                 |
| Transmission Line              | 32677.69   | -                                       | -             | -              | 32677.69  | 5.28%                                   |   |                 |                 |                 |                 |                 |
| Sub Station                    | 46670.30   | 30.78                                   | 479.55        | 5099.48        | 41060.49  | 5.28%                                   |   |                 |                 |                 |                 |                 |
| PLCC                           | 387.59   | -                                       | -             | -              | 387.59  | 6.33%                                   |   |                 |                 |                 |                 |                 |
| IT Equipment (Incl. Software)  | -  | -                                       | -             | -              | -   | 15.00%                                  |   |                 |                 |                 |                 |                 |
| <b>Total</b>                   | <b>80842.16</b>                                  | <b>30.78</b>                            | <b>479.55</b> | <b>5099.48</b> | <b>75232.35</b>                                   |   | <b>3577.77</b>  | <b>3779.72</b>  | <b>0.00</b>     | <b>0.00</b>     | <b>0.00</b>     |                 |
|                                |  |   |               |                |   |   | <b>Average Gross Block (₹ in lakh)</b>  | <b>80826.77</b> | <b>80571.61</b> | <b>77782.09</b> | <b>75232.35</b> | <b>75232.35</b> |
|                                |  |   |               |                |   |   | <b>Remaining Depreciable Value (₹ in lakh)</b>  | <b>7155.54</b>  | <b>3779.72</b>  | <b>0.00</b>     | <b>0.00</b>     | <b>0.00</b>     |
|                                |  |   |               |                |   |   | <b>Balance life (in years)</b>  | <b>2.00</b>     | <b>1.00</b>     | <b>0.00</b>     | <b>0.00</b>     | <b>0.00</b>     |
|                                |  |   |               |                |   |   | <b>Weighted Average Rate of Depreciation</b>  | <b>4.43%</b>    | <b>4.69%</b>    | <b>0.00%</b>    | <b>0.00%</b>    | <b>0.00%</b>    |



| 2019-24                                      | Capital Cost as on 1.4.2019 (₹ in lakh) | Projected ACE (₹ in lakh) |             |                 | Capital Cost as on 31.3.2024 (₹ in lakh) | Rate of Depreciation as per Regulations | Depreciation as per Regulations (₹ in lakh) |                |                 |                 |                 |
|--|---|---------------------------|-------------|-----------------|--|---|---|----------------|-----------------|-----------------|-----------------|
| Capital Expenditure                          |   | 2019-20                   | 2022-23     | Total           |  |   | 2019-20                                     | 2020-21        | 2021-22         | 2022-23         | 2023-24         |
| Transmission Line                            | 0.00                                    | 0.00                      | 0.00        | 0.00            | 0.00                                     | 5.28%                                   | -   | -              | -               | -               | -               |
| Sub Station                                  | 0.00                                    | 4695.26                   | 0.00        | 39509.51        | 39509.51                                 | 5.28%                                   | 123.95                                      | 466.65         | 1385.74         | 2086.10         | 2086.10         |
| PLCC   | 0.00                                    | 0.00                      | 0.00        | 0.00            | 0.00                                     | 6.33%                                   | -   | -              | -               | -               | -               |
| <b>Total</b>                                 | <b>0.00</b>                             | <b>4695.26</b>            | <b>0.00</b> | <b>39509.51</b> | <b>39509.51</b>                          |   | <b>123.95</b>                               | <b>466.65</b>  | <b>1385.74</b>  | <b>2086.10</b>  | <b>2086.10</b>  |
| <b>Average Gross Block (₹ in lakh)</b>       |   |                           |             |                 |  |   | <b>2347.63</b>                              | <b>8838.03</b> | <b>26245.15</b> | <b>39509.51</b> | <b>39509.51</b> |
| <b>Weighted Average Rate of Depreciation</b> |   |                           |             |                 |  |   | <b>5.28%</b>                                | <b>5.28%</b>   | <b>5.28%</b>    | <b>5.28%</b>    | <b>5.28%</b>    |





## Asset-II

| 2019-24<br>Capital Expenditure | Admitted Capital Cost as on 1.4.2019 (₹ in lakh) | Projected De-Capitalisation (₹ in lakh) |                |             |              |               | Admitted Capital Cost as on 31.3.2024 (₹ in lakh) | Rate of Depreciation as per Regulations        | Annual Depreciation as per Regulations (Post Completion of 12 years of Useful Life) (₹ in lakh) |                 |                 |                 |                 |
|--------------------------------|--|---|----------------|-------------|--------------|---------------|---|--|---|-----------------|-----------------|-----------------|-----------------|
|                                |  | 2019-20                                 | 2020-21        | 2021-22     | 2022-23      | 2023-24       |   |  | 2019-20   | 2020-21         | 2021-22         | 2022-23         | 2023-24         |
| Land - Freehold                | 580.96   | -                                       | -              | -           | -            | -             | 580.96  | -  | Spreading   |                 |                 |                 |                 |
| Land - Leasehold               | -  | -                                       | -              | -           | -            | -             | -   | 3.34%  |   |                 |                 |                 |                 |
| Building Civil Works & Colony  | 572.33   | -                                       | -              | -           | -            | -             | 572.33  | 3.34%  |   |                 |                 |                 |                 |
| Transmission Line              | 27442.76   | -                                       | -              | -           | -            | -             | 27442.76  | 5.28%  |   |                 |                 |                 |                 |
| Sub Station                    | 30979.76   | 5.67                                    | 7292.13        | 3.21        | 13.86        | 298.48        | 23366.41  | 5.28%  |   |                 |                 |                 |                 |
| PLCC                           | 313.53   | -                                       | -              | -           | -            | -             | 313.53  | 6.33%  |   |                 |                 |                 |                 |
| IT Equipment (Incl. Software)  | -  | -                                       | -              | -           | -            | -             | -   | 15.00%   |   |                 |                 |                 |                 |
| <b>Total</b>                   | <b>59889.34</b>                                  | <b>5.67</b>                             | <b>7292.13</b> | <b>3.21</b> | <b>13.86</b> | <b>298.48</b> | <b>52275.99</b>                                   |  | <b>1528.37</b>  | <b>3167.83</b>  | <b>4.12</b>     | <b>0.00</b>     | <b>0.00</b>     |
|                                |  |   |                |             |              |               |   | <b>Average Gross Block (₹ in lakh)</b>         | <b>59886.51</b>   | <b>56237.61</b> | <b>52589.94</b> | <b>52581.40</b> | <b>52425.23</b> |
|                                |  |   |                |             |              |               |   | <b>Remaining Depreciable Value (₹ in lakh)</b> | <b>4585.12</b>  | <b>6335.65</b>  | <b>0.00</b>     | <b>0.00</b>     | <b>0.00</b>     |
|                                |  |   |                |             |              |               |   | <b>Balance life (in years)</b>                 | <b>3.00</b>   | <b>2.00</b>     | <b>1.00</b>     | <b>0.00</b>     | <b>0.00</b>     |
|                                |  |   |                |             |              |               |   | <b>Weighted Average Rate of Depreciation</b>   | <b>2.55%</b>  | <b>5.63%</b>    | <b>0.01%</b>    | <b>0.00%</b>    | <b>0.00%</b>    |



| 2019-24<br>Capital Expenditure               | Capital Cost as on 1.4.2019 (₹ in lakh) | Projected ACE (₹ in lakh) |               |               |               |                |                | Capital Cost as on 31.3.2024 (₹ in lakh) | Rate of Depreciation as per Regulations | Depreciation as per Regulations (₹ in lakh) |               |               |                |                |
|--|---|---------------------------|---------------|---------------|---------------|----------------|----------------|--|---|---|---------------|---------------|----------------|----------------|
|  |   | 2019-20                   | 2020-21       | 2021-22       | 2022-23       | 2023-24        | Total          |  |   | 2019-20                                     | 2020-21       | 2021-22       | 2022-23        | 2023-24        |
| Transmission Line                            | 0.00                                    | 0.00                      | 0.00          | 0.00          | 0.00          | 0.00           | 0.00           | 0.00                                     | 5.28%                                   | -   | -             | -             | -              | -              |
| Sub Station                                  | 0.00                                    | 481.74                    | 111.93        | 341.43        | 589.58        | 3345.70        | 4870.38        | 4870.38                                  | 5.28%                                   | 12.72                                       | 28.39         | 40.36         | 64.94          | 168.83         |
| PLCC   | 0.00                                    | 0.00                      | 0.00          | 0.00          | 0.00          | 0.00           | 0.00           | 0.00                                     | 6.33%                                   | -   | -             | -             | -              | -              |
| <b>Total</b>                                 | <b>0.00</b>                             | <b>481.74</b>             | <b>111.93</b> | <b>341.43</b> | <b>589.58</b> | <b>3345.70</b> | <b>4870.38</b> | <b>4870.38</b>                           |   | <b>12.72</b>                                | <b>28.39</b>  | <b>40.36</b>  | <b>64.94</b>   | <b>168.83</b>  |
| <b>Average Gross Block (₹ in lakh)</b>       |   |                           |               |               |               |                |                |  |   | <b>240.87</b>                               | <b>537.71</b> | <b>764.39</b> | <b>1229.89</b> | <b>3197.53</b> |
| <b>Weighted Average Rate of Depreciation</b> |   |                           |               |               |               |                |                |  |   | <b>5.28%</b>                                | <b>5.28%</b>  | <b>5.28%</b>  | <b>5.28%</b>   | <b>5.28%</b>   |

