



## **COMMISSION'S ORDER**

**ON**

**TRUE UP OF THE AGGREGATE REVENUE REQUIREMENT (ARR) FOR TRANSMISSION BUSINESS AND STATE LOAD DISPATCH CENTRE (SLDC) FOR THE FY 2019-20, ANNUAL (MID-YEAR) PERFORMANCE REVIEW FOR FY 2020-21, DETERMINATION OF ARR FOR THE TRANSMISSION BUSINESS AND SLDC FOR THE FY 2021-22 AND TRANSMISSION TARIFF AND SLDC CHARGES FOR THE FY 2021-22.**

**CASE No: HERC/PRO – 75 of 2020**

**9<sup>th</sup> March, 2021**

**HARYANA ELECTRICITY REGULATORY COMMISSION  
BAYS 33-36, SECTOR-4, PANCHKULA-134112, HARYANA**

<https://herc.gov.in>

---

## CONTENTS

|                                                                               |           |
|-------------------------------------------------------------------------------|-----------|
| <b>CHAPTER 1 .....</b>                                                        | <b>6</b>  |
| <b>1.1 PETITION FILED BY HVPNL (TRANSMISSION AND SLDC) .....</b>              | <b>6</b>  |
| <b>1.2 TRUE-UP REQUIREMENT OF SLDC BUSINESS FOR FY 2019-20.....</b>           | <b>7</b>  |
| <b>1.3 REVIEW OF AGGREGATE REVENUE REQUIREMENT FOR FY 2020-21 .....</b>       | <b>8</b>  |
| <b>1.4 PROPOSED ANNUAL REVENUE REQUIREMENT FOR FY 2021-22 .....</b>           | <b>9</b>  |
| <b>1.5 ANNUAL TRANSMISSION CHARGES AND SLDC CHARGES .....</b>                 | <b>10</b> |
| <b>1.6 PROSPECTIVE SHORT-TERM OPEN ACCESS CHARGES (STOAC) .....</b>           | <b>11</b> |
| <b>CHAPTER 2 .....</b>                                                        | <b>12</b> |
| <b>2.1 PUBLIC PROCEEDINGS.....</b>                                            | <b>12</b> |
| <b>2.2 PUBLIC HEARING.....</b>                                                | <b>12</b> |
| <b>2.3 STATE ADVISORY COMMITTEE (SAC) .....</b>                               | <b>17</b> |
| <b>CHAPTER 3 .....</b>                                                        | <b>18</b> |
| <b>3.1 TRUE-UP OF ARR FOR THE FY 2019-20 .....</b>                            | <b>18</b> |
| <b>3.1.1 OPERATIONS AND MAINTENANCE EXPENSES FOR FY 2019-20 .....</b>         | <b>18</b> |
| <b>A. EMPLOYEE EXPENSES FOR FY 2019-20.....</b>                               | <b>19</b> |
| <b>B. TERMINAL BENEFITS FOR FY 2019-20 .....</b>                              | <b>21</b> |
| <b>C. ADMINISTRATIVE AND GENERAL EXPENSES (A&amp;G) FOR FY 2019-20.....</b>   | <b>22</b> |
| <b>D. REPAIRS AND MAINTENANCE EXPENSES (R&amp;M) FOR FY 2019-20 .....</b>     | <b>23</b> |
| <b>3.1.2 CAPITALIZATION FOR THE FY 2019-20.....</b>                           | <b>24</b> |
| <b>3.1.3 DEPRECIATION FOR FY 2019-20 .....</b>                                | <b>24</b> |
| <b>3.1.4 INTEREST AND FINANCE CHARGES FOR FY 2019-20 .....</b>                | <b>25</b> |
| <b>3.1.5 INTEREST ON WORKING CAPITAL FOR FY 2019-20.....</b>                  | <b>26</b> |
| <b>3.1.6 RETURN ON EQUITY (ROE) FOR FY 2019-20 .....</b>                      | <b>27</b> |
| <b>3.1.7 INCENTIVES AND PENALTY: SYSTEM AVAILABILITY FOR FY 2019-20 .....</b> | <b>28</b> |
| <b>3.1.8 FOREIGN EXCHANGE RATE VARIATION (FERV) FOR FY 2019-20 .....</b>      | <b>30</b> |
| <b>3.1.9 NON-TARIFF INCOME FOR FY 2019-20 .....</b>                           | <b>30</b> |
| <b>3.2 REVENUE FROM TRANSMISSION TARIFF FOR THE FY 2019-20 .....</b>          | <b>32</b> |

|                  |                                                                                                                                                |           |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>3.3</b>       | <b>APPROVED AND PROPOSED ARR FOR TRUE-UP OF FY 2019-20 .....</b>                                                                               | <b>32</b> |
| <b>3.4</b>       | <b>TRUE-UP OF SLDC BUSINESS FOR FY THE 2019-20 .....</b>                                                                                       | <b>33</b> |
| <b>3.5</b>       | <b>REVIEW OF AGGREGATE REVENUE REQUIREMENT FOR FY 2020-21 AND CAPITAL EXPENDITURE PLAN FOR FY 2021-22 TO FY 2024-25.....</b>                   | <b>34</b> |
| <b>3.6</b>       | <b>REVISED CAPITAL EXPENDITURE AND CAPITALIZATION FOR FY 2020-21 AND PROPOSED CAPITAL EXPENDITURE PLAN FOR CONTROL PERIOD FY 2021-22 .....</b> | <b>35</b> |
| <b>A.</b>        | <b>TRANSMISSION SYSTEM BUSINESS.....</b>                                                                                                       | <b>36</b> |
| <b>B.</b>        | <b>SUBSTATIONS .....</b>                                                                                                                       | <b>37</b> |
| <b>C.</b>        | <b>TRANSMISSION LINES.....</b>                                                                                                                 | <b>38</b> |
| <b>D.</b>        | <b>INFORMATION TECHNOLOGY .....</b>                                                                                                            | <b>38</b> |
| <b>E.</b>        | <b>LAND .....</b>                                                                                                                              | <b>38</b> |
| <b>F.</b>        | <b>MISCELLANEOUS ITEMS .....</b>                                                                                                               | <b>39</b> |
| <b>G.</b>        | <b>FUNDING PATTERN.....</b>                                                                                                                    | <b>39</b> |
| <b>H.</b>        | <b>INTRA-STATE TRANSMISSION LOSSES.....</b>                                                                                                    | <b>41</b> |
| <b>I.</b>        | <b>TRANSMISSION LOSSES.....</b>                                                                                                                | <b>41</b> |
| <b>J.</b>        | <b>TRENDS IN TRANSMISSION LOSSES .....</b>                                                                                                     | <b>41</b> |
| <b>K.</b>        | <b>TRANSMISSION SYSTEM AVAILABILITY .....</b>                                                                                                  | <b>48</b> |
| <b>L.</b>        | <b>FAILURES OF POWER TRANSFORMERS.....</b>                                                                                                     | <b>50</b> |
| <b>M.</b>        | <b>IDENTIFICATION OF DEFECTIVE LAS/GO SWITCHES/DEFECTIVE EARTHING AT 1ST H-POLE OF 11 KV FEEDERS EMANATING FROM HVPNL SUBSTATIONS:.....</b>    | <b>56</b> |
| <b>N.</b>        | <b>FATAL AND NON-FATAL ACCIDENTS.....</b>                                                                                                      | <b>58</b> |
| <b>O.</b>        | <b>PLANS FOR IMPROVING THE SYSTEM POWER FACTOR .....</b>                                                                                       | <b>59</b> |
| <b>P.</b>        | <b>ENERGY ACCOUNTING.....</b>                                                                                                                  | <b>61</b> |
| <b>Q.</b>        | <b>INADEQUATE OR DEFECTIVE METERS .....</b>                                                                                                    | <b>64</b> |
| <b>3.7</b>       | <b>EMPLOYEE RECRUITMENT AND RETIREMENT.....</b>                                                                                                | <b>66</b> |
| <b>3.8</b>       | <b>AGGREGATE REVENUE REQUIREMENT.....</b>                                                                                                      | <b>66</b> |
| <b>3.9</b>       | <b>REVENUE GAP AND CARRYING COST .....</b>                                                                                                     | <b>67</b> |
| <b>3.10</b>      | <b>REVIEW OF ARR OF STATE LOAD DISPATCH CENTRE.....</b>                                                                                        | <b>68</b> |
| <b>CHAPTER 4</b> | <b>.....</b>                                                                                                                                   | <b>70</b> |
| <b>4.1.</b>      | <b>BRIEF BACKGROUND.....</b>                                                                                                                   | <b>70</b> |

|                                                                                                                                         |           |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>4.2. OPERATION &amp; MAINTENANCE EXPENSES .....</b>                                                                                  | <b>70</b> |
| <b>A. EMPLOYEE COST.....</b>                                                                                                            | <b>70</b> |
| <b>B. REPAIR AND MAINTENANCE (R&amp;M) EXPENSES.....</b>                                                                                | <b>72</b> |
| <b>C. ADMINISTRATIVE &amp; GENERAL (A&amp;G) EXPENSES.....</b>                                                                          | <b>73</b> |
| <b>4.3. DEPRECIATION .....</b>                                                                                                          | <b>74</b> |
| <b>4.4. INTEREST &amp; FINANCE CHARGES .....</b>                                                                                        | <b>74</b> |
| <b>4.5. INTEREST ON WORKING CAPITAL .....</b>                                                                                           | <b>76</b> |
| <b>4.6. RETURN ON EQUITY (TRANSMISSION BUSINESS).....</b>                                                                               | <b>76</b> |
| <b>4.7. NON-TARIFF INCOME.....</b>                                                                                                      | <b>78</b> |
| <b>4.8. ARR FOR THE FY 2021-22.....</b>                                                                                                 | <b>78</b> |
| <b>4.9. UNITARY CHARGES.....</b>                                                                                                        | <b>78</b> |
| <b>4.10. YEARLY TRANSMISSION CHARGES (YTC) FOR TRANSMISSION LINES INCIDENTAL TO INTER-STATE TRANSMISSION (ISTS) OF ELECTRICITY.....</b> | <b>80</b> |
| <b>4.11. AGGREGATE REVENUE REQUIREMENT.....</b>                                                                                         | <b>80</b> |
| <b>4.12. SLDC ARR (FY 2021-22).....</b>                                                                                                 | <b>81</b> |
| <b>CHAPTER 5 .....</b>                                                                                                                  | <b>85</b> |
| <b>5.1. ANNUAL TRANSMISSION CHARGES AND SLDC CHARGES .....</b>                                                                          | <b>85</b> |
| <b>5.2. SHARE OF SLDC CHARGES AS PER HERC MYT REGULATIONS 2019.....</b>                                                                 | <b>86</b> |
| <b>5.3. PROSPECTIVE SHORT-TERM OPEN ACCESS CHARGES (STOA) .....</b>                                                                     | <b>88</b> |
| <b>5.4. RECOVERY OF SLDC CHARGES FROM SHORT TERM OPEN ACCESS CONSUMERS .....</b>                                                        | <b>89</b> |
| <b>5.5. REACTIVE ENERGY CHARGES: .....</b>                                                                                              | <b>89</b> |

**BEFORE HARYANA ELECTRICITY REGULATORY COMMISSION**

**BAYS NO. 33-36, SECTOR-4, PANCHKULA-134112**

**CASE NO: HERC / PRO- 75 OF 2020**

**IN THE MATTER OF**

Petition filed by Haryana Vidyut Prasaran Nigam Limited (herein after referred to as HVPNL or the Petitioner or the Licensee) for approval of True up for the FY 2019-20, Annual Performance Review for the FY 2020-21 and Tariff Petition for the FY 2021-22.

**QUORUM**

**Shri Pravindra Singh  
Shri Naresh Sardana**

**Member (in chair)  
Member**

**ORDER**

The present petition has been filed by HVPNL i.e. the Transmission Licensee also notified by the Haryana Government as the State Transmission Utility (STU) and State Load Dispatch Centre (SLDC).

The Haryana Electricity Regulatory Commission (hereinafter referred to as 'the Commission' or 'HERC'), in exercise of powers vested in it under section 62 of the Electricity Act, 2003 and Section 26 of the Haryana Electricity Reforms Act, 1997 and all other provisions enabling it in this behalf, has considered the petition filed by HVPNL for True-Up of the Aggregate Revenue Requirement (ARR) for Transmission Business and State Load Dispatch Centre (SLDC) for the FY 2019-20, Annual (Mid-Year) Performance review for the FY 2020-21, MYT petition for determination of ARR for the FY 2021-22 and determination of transmission tariff and SLDC charges for the FY 2021-22. The petition filed by HVPNL for its Transmission Business and SLDC is briefly set out hereunder:

## CHAPTER 1

### 1.1 PETITION FILED BY HVPNL (TRANSMISSION AND SLDC)

The Haryana Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Generation, Transmission, Wheeling and Distribution & Retail Supply under Multi Year Tariff Framework) Regulations, 2019 ("MYT Regulations 2019") were notified on October, 31, 2019. As per the provisions of the said Regulations, the Transmission Licensee i.e. Haryana Vidyut Prasaran Nigam Limited (HVPNL) is required to file, each year, an Annual Performance Review (APR) Petition for true-up of past year and review of estimates for the ensuing year, as per the MYT Order for the Control Period, in accordance with Regulation 11 of the ibid Regulations. The Commission has examined the petition in the light of the MYT Regulations, 2019 with appropriate adjustments / indexing wherever considered appropriate by the Commission. The "true up" has been prepared and examined as per the MYT Regulations, 2012.

HVPNL has filed the present Petition on 26.11.2020 for True-Up of the Aggregate Revenue Requirement (ARR) for Transmission Business and State Load Dispatch Centre (SLDC) for FY 2019-20, Annual (Mid-Year) Performance review for the FY 2020-21, MYT petition for determination of ARR for FY 2021-22 and determination of transmission tariff and SLDC charges for the FY 2021-22 under section 26(7) of the Haryana Electricity Reform Act, 1997 read with applicable provisions of the license, the MYT Regulations and section 32(3), Section 62 and 64 of the Electricity Act, 2003 for consideration and approval of the Commission.

The Petitioner, has sought True up of FY 2019-20 based on the Annual Audited accounts; Annual Performance Review of FY 2020-21 and Tariff Petition for FY 2021-22, based on the revised estimates for the FY 2020-21 and projections for the FY 2021-22 along with revised Capital Expenditure Plan for the FY 2020-21 and FY 2021-22. The details, as submitted by the Petitioner, are briefly set out in the paragraphs that follow. At the onset, the Commission observes that the FY 2019-20 Order (now being taken up for 'true-up') was passed in accordance with the applicable provisions of the HERC MYT Regulations, 2012. Hence, the 'true-up', for the FY 2019-20 shall be carried out as per the provisions and principles specified therein. While the Transmission ARR / SLDC charges for the FY 2021-22 shall be considered and determined in accordance with the provisions of the MYT Regulations, 2019 in vogue. The ARR approved by the Commission and revised ARR submitted for True up of transmission business for FY 2019-20 are summarized below. Additionally, it has been submitted that Rs. 2.84 Million, as directed by the HERC, for reversal of charges to beneficiary i.e. M/s Merino Panel Products, has been

added with the True-up for claim as per the order of the Commission in case number HERC/PRO-48 of 2019 dated 10.12.2019.

**Proposed True Up Requirement of Transmission Business for FY 19-20 (Rs. Millions)**

| Particulars                                           | Approved by HERC | Proposed for True-Up FY 2019-20 | Gap Surplus/ (Deficit) |
|-------------------------------------------------------|------------------|---------------------------------|------------------------|
| O&M expenses                                          | 4,115.36         | 6,437.82                        | (2322.46)              |
| R&M Expenses                                          | 438.13           | 271.71                          | 166.42                 |
| Employee Expenses                                     | 3,465.67         | 4,079.48                        | (613.81)               |
| Terminal Benefits                                     | (14.10)          | 1,657.45                        | (1,671.55)             |
| A&G Expenses                                          | 225.66           | 429.18                          | (203.52)               |
| Depreciation                                          | 3,948.56         | 4,005.47                        | (56.91)                |
| Interest on Loans                                     | 1,983.36         | 2,413.45                        | (430.09)               |
| Interest on working Capital                           | 181.91           | 18.38                           | 163.53                 |
| <b>Total Expenditure</b>                              | <b>10,229.19</b> | <b>12,875.12</b>                | <b>(2,645.93)</b>      |
| Return on Equity                                      | 2,276.59         | 3,132.03                        | (855.44)               |
| Less Non-Tariff Income                                | 246.04           | 809.19                          | (563.15)               |
| <b>Annual Transmission Charges</b>                    | <b>12,259.74</b> | <b>15,197.96</b>                | <b>(2,938.22)</b>      |
| Add: Incentive for TSA                                | -                | 84.65                           | (84.65)                |
| Add: Sharing of Benefits @ 60% - IWC                  | -                | 142.44                          | (142.44)               |
| <b>Net ARR</b>                                        | <b>12,259.74</b> | <b>15,425.05</b>                | <b>(3,165.31)</b>      |
| Add: Revenue Gap for True-up FY 2017-18               | 608.04           | 608.04                          | -                      |
| <b>Aggregate Revenue Requirement</b>                  | <b>12,867.78</b> | <b>16,033.09</b>                | <b>(3,165.31)</b>      |
| Transmission Share of SLDC                            | 5.70             | 12.42                           | (6.72)                 |
| Unitary Charges for JKTPPL                            | 513.17           | 522.58                          | (9.41)                 |
| <b>Transmission ARR</b>                               | <b>13,386.65</b> | <b>16,568.09</b>                | <b>(3,181.44)</b>      |
| Less: YTC for Lines Operating As ISTS Lines           | 109.5            | 48.21                           | 61.29                  |
| Add: ULDC (FOCS) (State Sector)                       | -                | 17.80                           | (17.80)                |
| Add: Payment made to Beneficiaries as charge Reversal | -                | 2.84                            | (2.84)                 |
| <b>Total Transmission Charges</b>                     | <b>13,277.15</b> | <b>16,540.52</b>                | <b>(3,263.37)</b>      |

## 1.2 TRUE-UP REQUIREMENT OF SLDC BUSINESS FOR FY 2019-20

The ARR approved by the Commission and Actual Expenditure incurred for FY 2019-20 by SLDC business and filed for true-up by the petitioner, is summarized below:

**Proposed True Up Requirement of SLDC Business for FY 2019-20 (Rs. Millions)**

| S. No. | Particulars                 | Approved by HERC | Actual        | Gap Surplus/ (Deficit) |
|--------|-----------------------------|------------------|---------------|------------------------|
| 1      | Employees Cost              | 46.93            | 49.49         | 2.56                   |
| 2      | A&G expenses                | 9.21             | 8.11          | 1.10                   |
| 3      | R&M Expenses                | 8.23             | 8.94          | 0.71                   |
| 4      | Depreciation                | 3.68             | 41.05         | 37.37                  |
| 5      | Interest on working Capital | 2.50             | 2.58          | 0.08                   |
| 6      | Return on Equity            | -                | 47.19         | 47.19                  |
| 7      | Less: Non-Tariff Income     | 1.28             | 2.15          | 0.87                   |
|        | <b>TOTAL</b>                | <b>71.29</b>     | <b>155.21</b> | <b>83.92</b>           |

### 1.3 REVIEW OF AGGREGATE REVENUE REQUIREMENT FOR FY 2020-21

#### Proposed Transmission ARR for FY 2020-21 (Rs. Million)

| Particulars                                | Approved by HERC | APR       | Gap Surplus/ (Deficit) |
|--------------------------------------------|------------------|-----------|------------------------|
| O&M expenses                               | 4,812.60         | 7,740.89  | 2,928.29               |
| R&M Expenses                               | 508.41           | 488.51    | 19.90                  |
| Employee Expenses                          | 3,979.37         | 4,792.08  | 812.71                 |
| Terminal Benefits                          | 20.90            | 2,010.10  | 2,031.00               |
| A&G Expenses                               | 345.72           | 450.19    | 104.47                 |
| Depreciation                               | 4,247.90         | 4,113.74  | 134.16                 |
| Interest on term Loans                     | 2,530.12         | 2,807.79  | 277.67                 |
| Interest on working Capital                | 180.38           | 303.48    | 123.10                 |
| Total Expenditure                          | 11,771.00        | 14,965.89 | 3,194.89               |
| Return on Equity                           | -                | 3,382.68  | 3,382.68               |
| Less: Non-Tariff Income                    | 222.8            | 222.8     | -                      |
| Annual Transmission Charges                | 11,548.20        | 18,125.78 | 6,577.58               |
| Add: Revenue Gap for FY 2019-20            | 485.16           | 3,263.37  | 3,748.53               |
| Add: Carrying cost on above                | 65.13            | 147.67    | 212.80                 |
| Aggregate Revenue Requirement              | 10,997.91        | 21,536.82 | 10,538.91              |
| Transmission Share of SLDC Charges         | 9.99             | 47.62     | 37.63                  |
| Unitary Charges for JKTP                   | 494.78           | 494.78    | -                      |
| Less YTC for Lines Operating As ISTS Lines | 96.9             | 70.28     | 26.62                  |
| Total Transmission Charges                 | 11,405.78        | 22,008.94 | 10,603.16              |

#### Proposed Revenue Gap with Carrying Cost for FY 2019-20 and FY 2020-21 (Rs. Million)

| Particulars                            | FY 2019-20 | FY 2020-21 |
|----------------------------------------|------------|------------|
| Approved ARR                           | 13,277.15  | 11,558.19  |
| Proposed Revised ARR                   | 16,540.52  | 18,125.78  |
| Opening Revenue Gap                    | -          | 3,411.04   |
| Addition in Revenue Gap                | 3,263.37   | 6,567.59   |
| Closing Revenue Gap                    | 3,263.37   | 9,978.63   |
| Interest Rate                          | 9.05%      | 8.45%      |
| Carrying Cost                          | 147.67     | 565.71     |
| Closing Revenue Gap with Carrying Cost | 3,411.04   | 10,544.34  |

#### Proposed Aggregate Revenue Requirement of SLDC for FY 2020-21 (in Rs. Million)

| SLDC Business                    | APR 2020-21 |
|----------------------------------|-------------|
| Employees Cost                   | 51.91       |
| Interest on Capex                | 7.57        |
| Depreciation                     | 352.92      |
| A&G expenses                     | 8.51        |
| R&M                              | 8.73        |
| Non-Tariff Income                | 1.45        |
| Interest on Working Capital      | 6.01        |
| Return on equity                 | 73.31       |
| Add: Revenue Gap/ Surplus Refund | 83.92       |

|               |               |
|---------------|---------------|
| Carrying Cost | 3.80          |
| <b>TOTAL</b>  | <b>595.22</b> |

#### 1.4 PROPOSED ANNUAL REVENUE REQUIREMENT FOR FY 2021-22

##### Proposed Transmission ARR for FY 2021-22 (in Rs. Million)

| Particulars                                 | 2021-22          |
|---------------------------------------------|------------------|
| O&M expenses                                | 9,952.13         |
| R&M Expenses                                | 529.88           |
| Employee Expenses                           | 4,947.51         |
| Terminal Benefits                           | 4,002.50         |
| A&G Expenses                                | 472.23           |
| Depreciation                                | 4,476.16         |
| Interest on term Loans                      | 3,424.96         |
| Interest on working Capital                 | 335.82           |
| Total Expenditure                           | 18,189.08        |
| Return on Equity                            | 3,614.37         |
| Less: Non-Tariff Income                     | -222.80          |
| Annual Transmission Charges                 | 21,580.65        |
| Add: Revenue Gap for FY 2019-20             | 3,748.53         |
| Add: Carrying cost on above                 | 212.80           |
| Add: Revenue Gap for FY 2020-21             | 6,567.59         |
| Add: Carrying cost on above                 | 565.71           |
| <b>Aggregate Revenue Requirement</b>        | <b>32,675.28</b> |
| Transmission Share of SLDC Charges          | 96.48            |
| Unitary Charges for JKTPPL                  | 497.30           |
| Less: YTC for Lines Operating as ISTS Lines | 69.45            |
| <b>Total Transmission Charges</b>           | <b>33,199.61</b> |

##### Proposed Aggregate Revenue Requirement for SLDC for FY 2021-22 (in Rs. Million)

| SLDC Business                    | ARR 2021-22     |
|----------------------------------|-----------------|
| Employees Cost                   | 54.45           |
| Interest on Capex                | 24.79           |
| Depreciation                     | 767.67          |
| A&G expenses                     | 8.92            |
| R&M                              | 18.68           |
| Non-Tariff Income                | 1.45            |
| Interest on Working Capital      | 9.75            |
| Return on equity                 | 156.88          |
| Add: Revenue Gap/ Surplus Refund | 157.23          |
| Carrying Cost                    | 9.06            |
| <b>TOTAL</b>                     | <b>1,205.99</b> |

## 1.5 ANNUAL TRANSMISSION CHARGES AND SLDC CHARGES

### Proposed Annual Transmission Charges for FY 2021-22 (In Rs. Million)

|                                                     |                    |                 |
|-----------------------------------------------------|--------------------|-----------------|
| <b>Annual Revenue Requirement for FY 2021-22</b>    | <b>Rs. Million</b> | <b>21580.65</b> |
| Revenue Gap for FY 2019-20 & FY 2020-21             | Rs. Million        | 10316.12        |
| Carrying cost on above                              | Rs. Million        | 778.51          |
| <b>Aggregate Revenue Requirement</b>                | <b>Rs. Million</b> | <b>32675.28</b> |
| Transmission Share of SLDC Charges                  | Rs. Million        | 96.48           |
| Unitary Charges for JKTPPL                          | Rs. Million        | 497.3           |
| Less YTC for Lines Operating as ISTS Lines FY 21-22 | Rs. Million        | 69.45           |
| <b>Total Transmission Charges</b>                   | <b>Rs. Million</b> | <b>33199.61</b> |
| Monthly Transmission Tariff                         | Rs. Million        | 2766.63         |
| Monthly Transmission Charges UHBVNL                 | 45.22%             | 1251.02         |
| Monthly Transmission Charges DHBVNL                 | 53.61%             | 1483.07         |
| Monthly Transmission Charges TPTCL                  | 0.47%              | 12.99           |
| Monthly Transmission Charges NTPC                   | 0.02%              | 0.52            |
| Monthly Transmission Charges CRPCPL                 | 0.00%              | 0.08            |
| Monthly Transmission Charges Northern Railways      | 0.69%              | 18.95           |

It has been submitted that the transmission charges are waived for M/s Marino Power and M/s Orbit as per the applicable regulations of HERC for its captive Solar Power Plants. In case of any addition of new beneficiary, the transmission charges would be charged in proportion of the respective allotted capacity.

### Proposed SLDC Charges for FY 2021-22 (in Rs. Million)

| Beneficiaries                              | Share                                | Total (Rs. Millions) FY 2021-22 |
|--------------------------------------------|--------------------------------------|---------------------------------|
| HVPN @ 8%                                  | -                                    | 96.4792                         |
| Generating Companies & Sellers @ 46%       | Installed Capacity /Capacity (in MW) | 554.7554                        |
| HPGCL                                      | 2,582.40                             | 324.9853                        |
| Faridabad Gas Power Plant                  | 432.00                               | 54.3656                         |
| Mahatma Gandhi Super Thermal Power Station | 1320.00                              | 166.1170                        |
| Gemco Biomass                              | 8.00                                 | 1.0068                          |
| Star Wire India Ltd                        | 9.90                                 | 1.2459                          |
| Sri Jyoti                                  | 9.50                                 | 1.1955                          |
| Shahbad Co-operative Sugar Mills           | 24.00                                | 3.0203                          |
| Naraingarh Sugar Mil                       | 22.40                                | 2.8190                          |
| Distribution Licensees and Buyers @ 46%    | Transformation Ratio (in %)          | 554.7554                        |
| UHBVNL                                     | 45.1749%                             | 250.6105                        |
| DHBVNL                                     | 53.5544%                             | 297.0958                        |
| Tata Power Trading Company Limited         | 0.4690%                              | 2.6020                          |
| NTPC                                       | 0.0189%                              | 0.1049                          |
| CRPCPL                                     | 0.0028%                              | 0.0155                          |

| Beneficiaries                                                  | Share   | Total (Rs. Millions) FY 2021-22 |
|----------------------------------------------------------------|---------|---------------------------------|
| Northern Railways                                              | 0.6844% | 3.7970                          |
| Merino Panel Products                                          | 0.0189% | 0.1049                          |
| Orbit Resorts Limited                                          | 0.0284% | 0.1574                          |
| M/S Sky City Hotels Pvt. Ltd.                                  | 0.0019% | 0.0105                          |
| M/s Asian Paints Limited                                       | 1.0189% | 0.1049                          |
| M/s Goodrich Carbohydrates Ltd.                                | 0.0091% | 0.0503                          |
| M/s Dorset Industries Pvt. Ltd.                                | 0.0034% | 0.0189                          |
| M/s KRBL Ltd.                                                  | 0.0036% | 0.0199                          |
| M/s G.S. Spinning Mills                                        | 0.0038% | 0.0210                          |
| M/s Garg Spinning Mills                                        | 0.0038% | 0.0210                          |
| M/s Bhartiya Spinners Ltd.                                     | 0.0038% | 0.0210                          |
| TOTAL (HVPN + GENERATING COMPANIES<br>+ DISTRIBUTION LICENSEES |         | 1,205.9900                      |

It has been submitted that in case of any addition of new beneficiary, the transmission charges would be charged in proportion of the respective allotted capacity.

#### 1.6 PROSPECTIVE SHORT-TERM OPEN ACCESS CHARGES (STOAC)

##### Proposed Transmission Charges to be recovered by STOAC

| STOA Charges (Rs. Mn)                                                              | Amount    |
|------------------------------------------------------------------------------------|-----------|
| Total Transmission Cost for FY 2021-22                                             | 33,199.61 |
| Actual Energy Transmitted by HVPN calculated at state bus bar for FY 2019-20 (MUs) | 53,973.10 |
| Proposed Charges                                                                   | 0.62      |

#### RECOVERY OF SLDC CHARGES FROM SHORT TERM OPEN ACCESS CONSUMERS

The petitioner has submitted that the short-term open access consumers shall pay composite SLDC charges as provided in HERC (Terms and conditions for grant of connectivity and open access for intra-State transmission and distribution system), Regulations, 2019 as amended from time to time.

As such the Hon'ble Commission is requested to decide the SLDC Charges to be recovered from Prospective Short-Term Open Access consumers.

## CHAPTER 2

### PROCEDURAL ASPECTS OF THE ARR FILING

#### 2.1 PUBLIC PROCEEDINGS

In accordance with the provisions of Section 64 (2) of the Electricity Act, 2003, HVPNL published its petition in abridged form for inviting comments / objections from the stakeholders / general public. The Public Notice was issued by the HVPNL in The Indian Express (English) and Dainik Tribune (Hindi) dated 27.11.2020 inviting objections/ suggestions/ comments from the stakeholders and general public. The Commission also issued Public Notice in Indian Express (English) and Dainik Jagran (Hindi) dated 02.01.2021 inviting comments / objections from the stakeholders/general public. In response to the public notice the following parties / stakeholders filed their objections.

#### 2.2 PUBLIC HEARING

The Commission, in order to afford an opportunity to the stakeholder/ interested person to present their case in person, held public hearing on the petition filed by HVPNL after intimating the date of public hearing in the newspapers. The date of public hearing was also posted on the website of the Commission under the heading 'Schedule of Hearing'.

The public hearing was held on 21.01.2021 through online video conferencing. The Petitioner made a presentation in the hearing and also responded to various queries / clarifications sought by the Commission.

In response to the public notice inviting objections / comments / suggestions, the following parties filed their written objections:

- i. Jindal Stainless (Hisar) Ltd.
- ii. EPTA

The objections filed by the above interveners and Commission's view on the same is as under:

**a) True up of ARR for FY 2019-20 approved by Hon'ble Commission vide order dated 07.03.2019:**

That the Hon'ble State Commission approved ARR for FY 2019-20 for a total Transmission Charge of Rs.13,277.15 Million and corresponding Monthly Transmission Charges of Rs.1,106.43 Million/month and Wheeling Charges of 27 Ps/unit for Short-Term Open Access consumers.

The Transmission Licensee has submitted a revised ARR for the year 2019-20 showing actual expenses of Rs. 16,540.52 Million, thus showing a deficit of Rs. 3,263.37 Million. The main variation has been indicated on O&M Expenses (Rs.2,322.46 Mn), Return on Equity (RoE) (Rs.855.44 Mn) and Interest on Working Capital (Rs.430.09 Mn). A substantial reduction of 38% has been shown in the R&M expenses. The lower expenses on R&M directly impacts the scheduled repairs & maintenance works which in turn affects the reliability of the system.

As per the Reg. 8.3.8 (b) of MYT Regulations, 2019, all these parameters fall under the category of “Controllable Items of ARR” and hence these variations may please be disallowed. This will also reduce the gap shown by the Licensee and the corresponding carrying cost.

Similarly, the proposal for ‘True up of SLDC Business for FY 2019-20 also refers to abnormal increase in amounts of Depreciation and RoE, which are both in ‘Controllable Category’ and hence should not be permitted.

**Commission’s view:**

The Commission has taken note of the aforesaid objection and shall reckon with the same at the relevant place of the present order.

**Review of ARR for FY 2020-21:**

That the Hon’ble Commission approved the Total Transmission Charges of HVPN for FY 2020-21 vide order dated 21.05.2020 for a net figure of Rs.11,405.77 Million. As per the present submissions for FY 2020-21, HVPN has requested the Commission to allow revised Total Transmission Charges of Rs. 22,008.94 Million i.e. an increase of Rs.10,603.16 Million or 93% over the approved figures. Major increase has been proposed in O&M Expenses (Rs.2,928.29 Million), Return on Equity (Rs.3,382.68 Million, which was not there) and Interest on Financing Charges Rs.400.77 Million and added to that is the substantial amount of Revenue Gap for FY 2019-20 & 2020-21. As already submitted above these parameters fall under the category of “Controllable Items of ARR” and hence may please be disallowed. Total CAPEX of Rs.8,650.30 Million has been shown for FY 2019-20, which should be linked with improvement in performance targets of HVPN.

**Commission’s View:**

At this stage, the Commission is not revising the figures for the FY 2020-21 which would tantamount to substituting one projected / estimated figure by another.

### **Proposed ARR for FY 2021-22:**

That the Utility has proposed total Transmission Charges for FY 2021-22 of Rs. 33,199.61 Million i.e. an increase of 191% over the approved ARR for FY 2020-21. Even in the ARR for SLDC, there is a projected increase of over 100% of that of the current year. Main increase has been proposed on account of the O&M Expenses (mainly Terminal Benefits and Employees Expenses), RoE, and the carry forward of the Revenue Gap from previous years. Such abnormal increase in proposed expenses adversely impact the beneficiaries who cannot pass on this expenditure to any other entity and have to bear it by itself. Moreover, there will be net impact on Transmission Charges to be recovered from Short Term Open Access consumers, which has been proposed as 62 Ps/unit against the current approved charge of 24 Ps/unit for FY 2020-21. This will amount to totally discouraging the power purchase from Power Exchange through open access. This will deny alternative cheaper source of power to the electricity consumers in Haryana and benefit consumers in other States to avail this cheap power.

### **Commission View:**

The above objections have been noted and shall be reckoned with at the relevant paragraph of the present order.

### **Income from EHV Open Access Consumers recovered as Distribution Charges w.e.f. 01.06.2020:**

That the Hon'ble Commission while determining the Distribution Wheeling Charges, introduced a new charge of 47 Ps/unit on the consumers who are connected to transmission system at 66 kV and above voltages. The order read as under,

*"The Commission observes that the embedded open access consumers of the Discom's drawing power at 66kV or above imposes cost which is being borne by the Discoms. Hence besides the intra state transmission loss as determined by the Commission for FY 2020-21 in the ARR/Tariff order of HVPNL, such open access consumers shall also be liable to pay the distribution system network cost as determined above i.e. Rs. 0.47 per Unit."*

In fact, these charges were levied for the first time for the use of EHV system associated with the consumers connected on 66 kV and higher voltages. The revenue so generated by the Distribution Licensee should be accounted for in the ARR of HVPN towards Non-Tariff Income.

### **Commission's View:**

The Commission observes that the ibid objections do not pertain to the petition under consideration on the same relates to the ARR / Tariff of the Discoms.

#### **ii. EPTA**

### **Background and Context:**

Haryana Vidyut Prasaran Nigam Ltd. (HVPNL) has filed the Petition for True up for FY 2019-20, Annual Performance Review of FY 2020-21, and Aggregate Revenue Requirement and Tariff Petition for FY 2021-22 with Hon'ble HERC.

In this petition, like the previous years, HVPNL has sought approval for projected Capex as well as revenue gap from earlier approved Multi Year Tariff. However, the issues of optimising cost and reducing the tariff burden on end consumers are missing here.

Keeping these aspects in mind, the Hon'ble Commission had recently issued its Staff Paper (Annexure-I) on Introduction of Competitive Bidding Based Transmission Projects & fixing a benchmark project cost (Threshold Limit). This was a starting point for the initiative of introduction of Tariff Based Competitive Bidding in Transmission in the State.

### **TBCB mode of development of Transmission projects:**

Tariff Based Competitive Bidding (TBCB) is a time-tested route for development of transmission projects. Since its introduction in 2006, and with the first project bid out in 2007-08, there are 55 Inter State Transmission System (ISTS) projects, and more than 12 Intra State Transmission System (InSTS) projects which have been awarded under competitive bidding route, including one of the initial few projects by Haryana itself. At present, there are 14 ISTS projects and 2 InSTS projects under tendering by different Bid Process Coordinators.

That the Hon'ble Commission has already noted in the above-mentioned Staff Paper that competitively discovered tariffs have repeatedly proven to be cheaper than cost-plus tariffs. It has also been well established that on an average tariff discovered under TBCB route are 30-40% lower as compared to tariffs under Cost Plus route.

In fact, the State Electricity Regulatory Commissions of Rajasthan, Bihar, and Punjab – recognizing the benefits of the TBCB model – have already determined a Threshold Limit above which all new and augmentation projects for development of intra-state transmission system shall be done under TBCB route only. This Threshold Limit value is Rs 50 Cr for Punjab (Annexure-II), and Rs 100 Cr for Rajasthan as well as Bihar (Annexure-III). Other States such as Maharashtra and Uttar Pradesh have also taken significant steps in this regard, with the State Government in case of Maharashtra (Annexure-IV) and the State Electricity Regulatory Commission in case of Uttar Pradesh (Annexure-V), notifying that all future InSTS development would be taken up via TBCB route only.

### **Submissions:**

The above-mentioned Staff Paper by the Hon'ble Commission was published for stakeholder consultation, and a public hearing was also scheduled for the same on 23.10.2020. However, due to intervening circumstances, the public hearing could not be concluded and was postponed. Seeing as to how the Hon'ble Commission has already recognized the benefits and inherent value of bringing a competitive framework in the Transmission segment for the State of Haryana, it is requested that the stakeholder consultation process for HERC's Staff Paper on Introduction of Competitive Bidding Based Transmission Projects & fixing a benchmark project cost (Threshold Limit) is taken to its logical conclusion, so that the end consumers can benefit from tariff savings already experienced in Central as well as State level Transmission projects across the Country.

### **Reply of HVPNL on EPTAs Comments**

Vide Letter Memo No. Ch-71/SE/RAU/F-155/Vol-III dated 19.01.2021, HVPNL has filed the following reply:

In this regard, it is intimated that Comments/suggestions of HVPNL on the discussion paper uploaded on the website of Hon'ble HERC regarding the Staff Paper for inviting comments / suggestions on Introduction of Competitive Bidding Based Transmission Projects & fixing a benchmark project cost thereto has been already sent to your office vide this office memo no. Ch-94/SER/RAU/F-155/Vol-II dated 07.09.2020 for consideration.

### **Commission's View:**

The Commission has taken note of the aforesaid submissions on TBCB and shall deal with the same separately i.e. while giving a final shape to the TBCB guidelines.

## **2.3 STATE ADVISORY COMMITTEE (SAC)**

The meeting of the State Advisory Committee, constituted under the enabling provisions of Section 87 of the Electricity Act, 2003, was held on 05.02.2021 through online video conferencing to seek suggestions / comments from the SAC Members on the ARR / Tariff proposal of the Haryana Power Utilities. The comments / suggestions of the SAC Members were mostly confined to the ARR / Tariff proposal of the power generating company i.e. HPGCL and the Distribution Licensee i.e. UHBVNL and DHBVNL, hence, the same is not being reproduced here. Submission made by the MD/HVPNL in the SAC meeting that they are focusing on streamlining of the transmission/SLDC business including goodwill /enterprise value of the company as well as the merit of implementing Tariff Based Competitive Bidding (TBCB) for implementing transmission projects above the threshold level, was taken on record and appreciated by the SAC Members.

## **CHAPTER 3**

### **COMMISSION'S ANALYSIS OF THE PETITION, STAKEHOLDERS' COMMENTS & ORDER**

#### **3.1 TRUE-UP OF ARR FOR THE FY 2019-20**

Regulation 13 of the HERC Tariff Regulations, 2012 provides for the True Up of previous year based on Audited Accounts. Further, Regulation 8 of the Tariff Regulations, 2012 provides that the baseline values for various financial and operational parameters of ARR for the control period shall be determined after taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year.

Accordingly, in the following paragraphs, various components of the ARR are discussed in detail for ascertaining the amount eligible for 'true- up' for the FY 2019-20.

##### **3.1.1 OPERATIONS AND MAINTENANCE EXPENSES FOR FY 2019-20**

Operations and Maintenance (O&M) Expenses of the Petitioner consists of the following elements:

- A.** Employee Expenses
- B.** Repairs and Maintenance Costs (R&M)
- C.** Administrative and General Expenses (A&G)

Further, the employee expenses comprise of salaries, dearness allowance, leave encashment and staff welfare expenses etc. Administrative expenses mainly comprise of rents, telephone and other communication expenses, professional charges, conveyance and travelling allowances, other debits etc. Repairs and Maintenance Expenses go towards the day to day upkeep of the transmission network of the company and form an integral part of the Petitioner's efforts towards reliable and quality power supply as also in the reduction of losses in the system. Regulation 45.3 of HERC MYT Regulations 2012 provides for determination of Operations and Maintenance (O&M) Cost. A comparison of approved and actual Operations and Maintenance (O&M) expenses as per the audited accounts for the financial year 2019-20, incurred during the FY 2019-20 is summarized in the following table.

**Table: Proposed True Up of O&M Expenses for FY 2019-20 (Rs. Million)**

| Particulars               | Approved by HERC | Actual  | Difference Surplus/(Deficit) |
|---------------------------|------------------|---------|------------------------------|
| <b>O &amp; M expenses</b> | 4115.36          | 6437.82 | (2322.46)                    |
| R & M Expenses            | 438.13           | 271.71  | 166.42                       |
| Employee Expenses         | 3465.67          | 4079.48 | (613.81)                     |
| Terminal Benefits         | (14.10)          | 1657.45 | (1671.55)                    |
| A & G Expenses            | 225.66           | 429.18  | (203.52)                     |

#### **A. EMPLOYEE EXPENSES FOR FY 2019-20**

A comparison of approved and actual employee expenses incurred during FY 2019-20 as filed by HVPNL is summarized in the following table.

**Proposed True Up of Employee Expenses for FY 2019-20 (Rs. Millions)**

| Particulars                     | Approved by HERC | Actual         | Difference Surplus/(Deficit) |
|---------------------------------|------------------|----------------|------------------------------|
| Salaries and Wages              |                  | 3053.44        |                              |
| Other Staff Cost                |                  | 982.67         |                              |
| Staff Welfare Expenses          |                  | 90.56          |                              |
| Benefit from Staff Loans        |                  | 2.30           |                              |
| Less: Employee Benefit for SLDC | 3465.67          | 49.49          | (613.81)                     |
| <b>Total Employee cost</b>      | <b>3465.67</b>   | <b>4079.48</b> | <b>(613.81)</b>              |

The Commission has considered the submissions of the Petitioner that the employee cost for the FY 2019-20 was approved by the Commission vide its Order dated 31.10.2018 and now the Commission may consider the actual employee cost of FY 2019-20, as reflected in the annual audited accounts for the year under consideration, which may be approved and set as a base for projecting employee cost for the ensuing Control Period.

The Commission has considered the prayer of the petitioner and observes that there is considerable increase in employee cost incurred as against that approved by the Commission for the FY 2019-20. The Commission had approved the employee cost as proposed by the petitioner for the FY 2019-20 except for the cost proposed for new recruits, in the absence of any justification for new employees and also expecting that the cost of retiring employees and replacement of contractual employees would set off the increased cost on account of fresh recruitment. Though the number of total employees has not gone up substantially; **in light of increased DA and HRA, the Commission finds the employee cost proposed for true up in order and approves Rs. 4079.48 as employee cost for the FY 2019-20.**

Having approved the "True up" proposed, the Commission is of the considered view that the licensee ought not to lose sight of the Commission's order dated 31.10.2018, as reproduced below:

**Employees Rationalization:** As pointed out earlier also, the sub-station automation system has been embarked upon in all the new / upcoming sub-stations of HVPNL. Resultantly, the manpower required for manning such sub-stations would reduce to a certain extent. Hence, keeping in view modernization and automation, HVPNL was directed to undertake manpower planning & rationalizations to rein in employees' cost. In this regard, HVPNL submitted that a proposal has been prepared by Technical Committee and considered by the Whole Time Directors, HVPNL in its meeting held on 21.12.2017. Now, the agenda is being put-up for consideration of the BODs, HVPNL. **In this regard, HVPNL is directed to submit the final report to the Commission within three months.**

The aforesaid direction was reiterated in order dated 21.05.2020 as under:

The Commission observes that with advancements in technology, a proper long-term manpower planning / budgeting, re-skilling / re-deployment including those from other Power Utilities ought to be undertaken in order to ensure that human resources are gainfully utilized and the overall employees cost in the power sector in Haryana is reined in.

In this regard HVPNL, vide office memo dated 22.07.2020 and 07.11.2020 has submitted as under:

- b) The Board of Directors, HVPNL in its meeting held on 13.12.2019 decided that the restructuring of manpower is required keeping in view the vacancy position, digitalization, new technology for root survey of transmission lines, cyber security, networking, other new age jobs and desired that necessary step be initiated so that restructuring exercise with proper justification of each post after having discussion with the concerned employee unions be completed within two months. Accordingly, draft restructuring proposal was prepared and appraised to the Board in its meeting held on 12.06.2020.
- c) Based, on the above appraisal, the board of directors, HVPNL decided to constitute a sub-committee of the Members of the board to examine the proposed Restructuring Policy and submit the report in one month. Accordingly, a sub-committee has been constituted vide office order no. 848/CS/HVPNL/Misc-18/Vol-III dated 30.06.2020.
- d) After constitution of Sub Committee of Board members, following meetings were held to finalize the restructuring of manpower in HVPNL.

| Sr. No. | Number of meeting       | Meeting held on |
|---------|-------------------------|-----------------|
| 1       | 1 <sup>st</sup> Meeting | 08.07.2020      |
| 2       | 2 <sup>nd</sup> Meeting | 22.08.2020      |

| Sr. No. | Number of meeting       | Meeting held on |
|---------|-------------------------|-----------------|
| 3       | 3 <sup>rd</sup> Meeting | 03.09.2020      |
| 4       | 4 <sup>th</sup> Meeting | 14.09.2020      |
| 5       | 5 <sup>th</sup> Meeting | 03.10.2020      |

- e) The Sub-Committee of Board members in its 5th meeting held on 03.10.2020 concluded that the draft report of restructuring of manpower in HVPNL be deliberated with the Management before further proceed in the case.
- f) The draft report submitted by the Sub-Committee of the Board Members is under active consideration of the HVPNL management.

The Commission is dismayed to observe that the licensee has not taken the directive in the right spirit. The licensee must understand that each directive issued by the Commission is well thought of and is intended to provide appropriate direction to the operations of the licensee. Tardy implementation of these directives makes a sad mockery of the efforts put in by the Commission. This has also led to a gap in projected costs and thereby leading to additional cost on true up. The entire effort ought to have been directed towards reigning in the cost of employee with proper manpower planning and budgeting. HVPNL shall keep the basic objective of restructuring of manpower in mind.

#### B. TERMINAL BENEFITS FOR FY 2019-20

Regulation 8 of the MYT Regulations 2012 provides that the terminal liability is an uncontrollable element of ARR. Accordingly, the Petitioner has sought 'true up' of terminal liability based on the actual terminal benefits expenses incurred as provided below.

##### Proposed True Up of Terminal Liabilities for FY 2019-20 (Rs. Million)

| Particulars                         | Approved by HERC | Actual  | Gap Surplus/(Deficit) |
|-------------------------------------|------------------|---------|-----------------------|
| Terminal Liabilities for FY 2019-20 | (14.10)          | 1657.45 | (1671.55)             |

The Commission has considered the submissions of the Petitioner and in accordance with the Audited Accounts, approves **Rs. 1657.45 million towards terminal benefits for the FY 2019-20**. However, the Commission would like to reiterate the directive on payment to pension trust issued vide order dated 07.03.2019 as under:

*The Commission directs the licensee to seek prior approval of the Commission for contribution to the pension trust in excess of that proposed by it in the ARR in future in view of the fact that there is no legal hitch in deferring the payment to the trust funds as demonstrated by the proposal of the licensee for the FY 2016-17. The Commission further directs the Licensee to*

*ensure that any payment approved by the Commission in its order towards terminal benefits is duly paid within time and before the close of the relevant financial year.*

Accordingly, the Commission observes that though the terminal benefits cost actually incurred by the licensee is approved for true up, no carrying cost shall be allowed on the difference between the approved cost and the pass-through cost in light of the instructions issued to pay only the approved cost during the year.

The Commission further observes that no reduction is undertaken by the Commission, while approving terminal benefits, as the Commission is of the considered view that the employees who have put in a lifetime of service in the organization, deserve a secured payout. However, the Commission is perturbed to observe that there is substantial difference in proposed and actual terminal benefits even when both are based on actuarial valuation. This raises question on the sanctity of the actuarial valuation including the underlying assumption for which additional cost is incurred by the licensee twice for each year. This also leads to wide fluctuations in the ARR leading to avoidable true up.

The Commission directs HVPNL to submit a proposal for calculating terminal benefits which would be able to take care of both these aspects along with the next ARR petition in view of the fact that as per the audited accounts the actuarial liability, is fully funded as on 31.3.2020. Going forward, only the current service cost may be required to be added to the ARR on account of terminal benefits, except in case of an unexpected / unanticipated change in either the pay scales or pension benefits of pre-2006 employees, which may be spread out in a number of years to prevent any tariff shock to the beneficiaries / electricity consumers.

#### **C. ADMINISTRATIVE AND GENERAL EXPENSES (A&G) FOR FY 2019-20**

Following table provides a comparison of approved and actual A&G Expenses for FY 2019-20.

**Proposed True Up of A&G Expenses for FY 2019-20 (Rs. Million)**

| Particulars                                             | Approved by HERC | Actual | Gap<br>Surplus/(Deficit) |
|---------------------------------------------------------|------------------|--------|--------------------------|
| Administration Expenses                                 |                  |        |                          |
| Rent (including lease rent)                             |                  | 1.79   |                          |
| Insurance                                               |                  | 3.71   |                          |
| Rates and taxes                                         |                  | 83.41  |                          |
| Telephone charges, postage, telegprpm and Telex charges |                  | 4.36   |                          |
| Mobile sets charges                                     |                  | 0.44   |                          |
| Legal and professional                                  | 225.66           | 30.68  | (203.52)                 |

| Particulars                                             | Approved by HERC | Actual | Gap Surplus/(Deficit) |
|---------------------------------------------------------|------------------|--------|-----------------------|
| Payments to auditors (including out of pocket expenses) |                  | 0.78   |                       |
| Consultancy charges                                     |                  | 3.15   |                       |
| Professional charges                                    |                  | 3.98   |                       |
| Service charges for computerisation                     |                  | 0.76   |                       |
| Conference expenses                                     |                  | 0.04   |                       |
| Tranning expenses                                       |                  | 12.58  |                       |
| Travelling and conveyance                               |                  | 83.40  |                       |
| Other expenses                                          |                  | 196.80 |                       |
| Sub total of Administrative Expenses                    |                  | 425.87 |                       |
| Other charges                                           |                  |        |                       |
| Material related expenses                               |                  | 9.59   |                       |
| Expenses on photoostate on contract basis               |                  | 1.83   |                       |
| Impairment loss                                         |                  | -      |                       |
| Sub total of other charges                              |                  | 11.42  |                       |
| Less A &G expenses against SLDC                         |                  | 8.11   |                       |
| Total charges                                           |                  | 429.18 |                       |

The Commission has considered the submissions of the licensee that the increase in A&G cost is due to the payment of previous arrears pertaining to Property Taxes, higher legal and professional fees pertaining to Arbitrage cases and updating of schedule of rates for training and travel etc. The Commission observes that same reasons were cited by the licensee while justifying higher employee cost for the FY 2018-19. The Commission expects appropriate analysis of all such costs by the petitioner in order to prudently examine the same, for true up.

The Commission has examined the actual A&G expenses incurred by the licensee for the FY 2019-20 and finding the same in order, **approves Rs.281.54 million as A&G costs for the FY 2019-20** after excluding Rs.100 million donations made out of profits by the licensee into the CM relief fund as per documents submitted as also Rs.47.64 million on CSR expenses in light of the same being a charge on profits. It may be noted that one-time expenses ought not to be considered while projecting expenses for the ensuing year.

#### D. REPAIRS AND MAINTENANCE EXPENSES (R&M) FOR FY 2019-20

The following table provides a comparison of approved and actual R&M Expenses for the FY 2019-20.

**Proposed True Up of R&M Expenses for FY 2019-20 (Rs. Millions)**

| Particulars                  | Approved by HERC | Actual | Difference Surplus/(Deficit) |
|------------------------------|------------------|--------|------------------------------|
| Plant and Machinery          |                  | 147.20 |                              |
| Building                     |                  | 84.63  |                              |
| Civil works                  |                  | 19.75  |                              |
| Lines, Cables Net Works etc. |                  | 13.29  |                              |

| Particulars                 | Approved by HERC | Actual        | Difference Surplus/(Deficit) |
|-----------------------------|------------------|---------------|------------------------------|
| Vehicles                    | 438.13           | 9.50          | 166.42                       |
| Furniture and Fixtures      |                  | 0.36          |                              |
| Other Office Equipment's    |                  | 5.92          |                              |
| <b>Total</b>                |                  | <b>280.65</b> |                              |
| Less: SLDC                  |                  | 8.94          |                              |
| <b>Total R &amp; M Cost</b> | <b>438.13</b>    | <b>271.71</b> | <b>166.42</b>                |

The Commission has considered the submissions of the Petitioner that the actual R&M expenses incurred are lower than the HERC approved R&M expenditure. The Petitioner has submitted that every element of R&M expenses incurred are related to works which are recurring in nature and the Petitioner has applied significant prudence in undertaking these works, the benefit of which can be passed on to the beneficiaries. **The Commission accordingly approves Rs. 271.71 million as R&M expenses for the FY 2019-20.**

### 3.1.2 CAPITALIZATION FOR THE FY 2019-20

The Commission observes that Capitalization of Assets i.e. transfer of capital works from CWIP to FAR, as the assets enter into revenue earning mode, has a direct bearing on the ARR as the amount capitalized goes into the rate base. It has been noted that during the year FY 2019-20, a total of Rs. 6681.89 Million is capitalized and added to the Gross Fixed Asset towards Transmission Business as per the details provided by HVPNL tabulated below: -

#### ADDITIONS TO GFA for FY 2019-20 (Rs. Million)

| Particular           | Gross fixed assets           |                      |                        |                        |
|----------------------|------------------------------|----------------------|------------------------|------------------------|
|                      | At the beginning of the year | Addition during year | Adjustment & deduction | At the end of the year |
| Land                 | 3776.45                      | 4.91                 | -                      | 3781.36                |
| Building             | 6018.86                      | 166.89               | 0.15                   | 6185.60                |
| Plant and Machinery  | 77079.03                     | 6496.06              | 175.38                 | 83399.71               |
| Furniture & Fixtures | 250.37                       | 9.84                 | 1.76                   | 258.44                 |
| Vehicles             | 135.03                       | 4.19                 | 2.60                   | 136.62                 |
| Total                | 87259.73                     | 6681.89              | 179.89                 | 93761.74               |

### 3.1.3 DEPRECIATION FOR FY 2019-20

The following table provides details of depreciation expenses for the FY 2019-20 as per the Audited Accounts.

#### Proposed True Up of Depreciation for Transmission Business for FY 2019-20 (Rs. Millions)

| Particular          | Provision for Depreciation   |                      |                        |                        |
|---------------------|------------------------------|----------------------|------------------------|------------------------|
|                     | At the beginning of the year | Addition during year | Adjustment & deduction | At the end of the year |
| Land                | -                            | -                    | -                      | -                      |
| Building            | 1841.89                      | 181.83               | 0.05                   | 2023.67                |
| Plant and Machinery | 28861.47                     | 3803.29              | 120.25                 | 32544.50               |

| Particular           | Provision for Depreciation   |                      |                        |                        |
|----------------------|------------------------------|----------------------|------------------------|------------------------|
|                      | At the beginning of the year | Addition during year | Adjustment & deduction | At the end of the year |
| Furniture & Fixtures | 135.08                       | 16.76                | 1.51                   | 150.32                 |
| Vehicles             | 105.13                       | 3.60                 | 2.35                   | 106.37                 |
| Less: SLDC Assets    | 383.04                       | 41.05                | 32.30                  | 391.79                 |
| Total                | 30943.56                     | 4005.47              | 124.17                 | 34824.87               |

The Commission has taken note of the submissions of the Petitioner that it has followed the principle adopted by the Commission in its True up order and deducted the depreciation chargeable to SLDC assets, Generation Assets and towards assets financed through consumer contribution and further requests the Commission to approve the depreciation for the FY 2019-20 on actual basis, as detailed in the table above.

The Commission, in view of the fact that the rates of depreciation are as approved by the Commission in the MYT Regulations, 2012, finds no reason to further examine the actual calculation of depreciation and approves the same as proposed by the Petitioner except for reducing the depreciation on SLDC assets Rs. 41.05 million and depreciation on assets funded through consumer contribution Rs. 216.05 from the depreciation as per audited accounts, Rs. 4005.47 million, leading to a net approved cost of Rs. 3748.37 million for the FY 2019-20 on this account.

### 3.1.4 INTEREST AND FINANCE CHARGES FOR FY 2019-20

The following table provides a comparison of approved and actual interest and finance charges incurred in the FY 2019-20.

**Proposed True Up of Interest and finance charges for FY 2019-20 (Rs. Million)**

| Particulars                                                    | Approved by HERC | Actual   | Gap/Surplus (Deficit) |
|----------------------------------------------------------------|------------------|----------|-----------------------|
| Rural Electrification Corp.                                    |                  | 1766.23  |                       |
| Interest on Medium Term Loan from REC                          |                  | -        |                       |
| Power Finance Corp.                                            |                  | 333.72   |                       |
| Interest on World Bank Loan through State Govt. (WB)           |                  | 346.14   |                       |
| Interest on loan from NABARD                                   |                  | 89.26    |                       |
| Loan Processing Fee World Bank Loan                            |                  | 1.87     |                       |
| Total                                                          |                  | 2537.21  |                       |
| Foreign Exchange                                               |                  | 137.59   |                       |
| Other interest & Finance Charges                               |                  | -        |                       |
| Total of B                                                     |                  | 137.59   |                       |
| Grand Total of Interest & Finance Charges: A +B                |                  | 2674.80  |                       |
| Less: Interest & Finance Charges Chargeable to Capital Account |                  | (261.36) |                       |
| Net Interest on Loan                                           | 1983.36          | 2413.45  | (430.09)              |

The Commission, in its order dated 18.08.2015, had examined the allocation of borrowings amongst various businesses of the licensee and had approved loan balances as on 31.03.2014 based on the information provided by the licensee. Accordingly, the balance as on 31.03.2015 was arrived at as part of true up for the FY 2014-15 vide order dated 31.03.2016. Going forward, the balance as on 31.03.2015 was adjusted for approved additions for long term borrowings based on approved funding of capital expenditure for the FY 2015-16, FY 2016-17, 2017-18 and FY 2018-19 to arrive at the opening balance of long-term borrowings, as on 01.04.2019. As the actual loan balance as on 01.04.2019 almost the same as that arrived at by the Commission in the above said manner, the actual loan balance has been considered for calculating the interest cost eligible for true up for the FY 2019-20. The Commission has examined the proposed true up of Interest on term loans by the license and finds the same in Order. **The Commission however observes that the proposed amount of Rs. 2413.45 million is inclusive of Foreign Exchange Rate Variation (FERV) cost amounting to Rs. 137.59 million.** As the FERV cost is approved separately by the Commission as the same is an allowable cost under the MYT Regulations, **the Commission approves interest cost on long term at Rs. 2275.86 Million (Rs. 2413.45 million less Rs. 137.59 Million).**

### 3.1.5 INTEREST ON WORKING CAPITAL FOR FY 2019-20

The Commission has taken note of the following table that provides a comparison of approved and normative computation of Working Capital as per the HERC MYT Regulations 2012 for FY 2019-20.

**Proposed Interest on working capital for FY 2019-20 (Rs. Millions)**

| Particulars                 | Approved by HERC | Actual | Gap/Surplus (Deficit) |
|-----------------------------|------------------|--------|-----------------------|
| Interest on working capital | 181.91           | 18.38  | 163.53                |

It has been submitted that the interest on working capital approved by the Commission on the APR was in line with the MYT Regulations 2012 and subsequent amendments. The Normative Interest on Working Capital incurred by the Petitioner is significantly lower than that approved by the Commission.

Therefore, the Petitioner has prayed to the Commission to approve the interest on working capital as mentioned above at Rs. 18.38 Million, as well as the sharing of gains on account of efficiency in managing cashflows which resulted in savings in Interest in Working Capital are on 60:40 ratio between HVPN and beneficiaries at Rs. 142.44 Million.

**Sharing of Gains on Interest on Working Capital (Rs. Million)**

| Particulars                          | Actual | Normative | 60% of Saving (Benefit) |
|--------------------------------------|--------|-----------|-------------------------|
| Gains on Interest on working capital | 18.38  | 255.79    | 142.44                  |

On the petitioner's claim of sharing of gains on lower interest on working capital, the Commission has examined the relevant provisions of the MYT regulations and observes that as per regulation 12.2(a) (iii), the incentive shall be available when the interest rate falls the level specified by the Commission. In the present case, the licensee is not claiming incentive on lower rate of interest due to better operational efficiency, but that it was able to manage its financial operations in a manner that it was able to reduce its working capital requirement. The Commission appreciates the better cash management of the licensee which has enabled it to save Rs. 163 million in finance cost. However, in the absence of appropriate provisions in the regulations, the Commission is unable to grant the request for incentive. Accordingly, the Commission, after due deliberations, approves the interest on working capital to the cost actually incurred by the licensee i.e. Rs 18.38 million, for the purpose of 'True up'.

**3.1.6 RETURN ON EQUITY (ROE) FOR FY 2019-20**

The Petitioner has proposed the RoE for the FY 2019-20 considering the closing equity for FY 2018-19 as mentioned in HERC Order dated 21.05.2020. The Petitioner has estimated RoE in line with the HERC MYT Regulations 2012 and subsequent amendments and as per the Methodology proposed in the Tariff Order with equity share of 30%. The equity portion of assets capitalized is considered for estimating the amount of equity eligible for return on equity. The petitioner has proposed return on equity @ 14% for true up purposes, justifying the same as being in line with the MYT Regulations, 2012 and subsequent amendments thereof.

**Proposed RoE for FY 2019-20 (Rs. Million)**

| Particulars                                                 | Approved by HERC | Actual      | Gap/Surplus (Deficit) |
|-------------------------------------------------------------|------------------|-------------|-----------------------|
| Equity to be considered for Transmission business (opening) |                  | 21369.34    |                       |
| Add: Equity portion of GFA added                            |                  | 2004.57     |                       |
| Closing equity for RoE                                      |                  | 23373.91    |                       |
| Average Equity                                              |                  | 22371.62371 |                       |
| Rate of return                                              |                  | 14.00%      |                       |
| RoE- Proposed                                               | 2276.59          | 3132.03     | (855.44)              |

The Petitioner has prayed that the Commission may allow the revised return on equity for true-up.

The Commission has considered the above submissions and observes that the opening equity for transmission business as on 01.04.2019 has already been determined by the Commission vide Order dated 20.05.2020 and therefore, the same amount has been considered for calculations of RoE for the FY 2019-20. Further, on perusal of the Audited Accounts, it is observed that the licensee has incurred capital expenditure amounting to Rs. 6994.35 million which is funded by consumer contribution amounting to Rs. 286.49 million and borrowings amounting to Rs. 5039.41 million. Accordingly, only the balance amount of equity i.e. Rs. 1668.45 million, which is 23.85% of capital expenditure, shall be eligible to be considered for RoE. Accordingly, the same percentage is used to calculate additional equity eligible for calculating RoE for assets put to use in the FY 2019-20. The Commission also observes that the licensee has also transferred assets amounting to Rs. 525.90 million from transmission business to SLDC during the FY 2018-19. Accordingly, the equity proportionate to these assets shall also be reduced from equity for transmission business. The rate of return is 10% in accordance with regulation 11.6 of the MYT regulations and the HERC Order dated 07.03.2019. The Commission approved calculations for RoE are as given in the table below: -

| HERC approved RoE                                                                                             | Rs. Million |
|---------------------------------------------------------------------------------------------------------------|-------------|
| Equity for Transmission Business as on 31.03.2019 as determined by the Commission vide Order dated 20.05.2020 | 21369.34    |
| Less equity relating to assts transferred to SLDC (30% of 525.904 million)                                    | 157.77      |
| Adjusted Equity as on 31.3.2019                                                                               | 21211.57    |
| Additions to GFA for the FY 2019-20 (Net of SLDC Assets)                                                      | 4961.02     |
| Equity received against above additions @ 23.85%                                                              | 1183.20     |
| Equity in use for transmission business as on 31.3.2020                                                       | 22394.77    |
| Average equity for the FY 2019-20                                                                             | 21803.17    |
| Approved Rate of Return for the FY 2019-20                                                                    | 10%         |
| Approved RoE for the FY 2019-20                                                                               | 2180.32     |

**In view of the above, the Commission allows RoE for the FY 2019-20 at Rs. 2180.32 million as the trued-up amount.**

### **3.1.7 INCENTIVES AND PENALTY: SYSTEM AVAILABILITY FOR FY 2019-20**

Regulation 12 of the HERC MYT Regulations 2012 provides for the incentives and penalty for system availability.

The availability has been calculated by the petitioner, circle wise for all circles, month wise and then the average has been taken to arrive at the system availability for the year. The month wise availability of each circle is calculated with the help of the formula prescribed in MYT Regulations.

#### Calculation of System Availability for FY 2019-20

| Sr. No. | Month   | Total of lines & Transformers capacity during month (C*D) | Total Numerator (H*C*D) | Availability during month (100-100*(S/(R*U)) | Hours in the month | Total Denominator (R *U) | Cumulative Transmission System Availability (in percentage) |
|---------|---------|-----------------------------------------------------------|-------------------------|----------------------------------------------|--------------------|--------------------------|-------------------------------------------------------------|
| 1       | Apr-19  | 132205.8888                                               | 431895.2284             | 99.54627249                                  | 720                | 95188239.95              | 99.54627249                                                 |
| 2       | May-19  | 126006.4416                                               | 406228.7546             | 99.56668375                                  | 744                | 93748792.53              | 99.55640037                                                 |
| 3       | June-19 | 126737.8253                                               | 98163.46848             | 99.89242505                                  | 720                | 91251234.23              | 99.66583631                                                 |
| 4       | July-19 | 127381.0933                                               | 197016.9415             | 99.7921138                                   | 744                | 94771533.4               | 99.69775309                                                 |
| 5       | Aug-19  | 128218.7831                                               | 98023.45037             | 99.89724442                                  | 744                | 95394774.66              | 99.73821285                                                 |
| 6       | Sept-19 | 129065.8927                                               | 46282.1075              | 99.95019544                                  | 720                | 92927442.72              | 99.77318467                                                 |
| 7       | Oct-19  | 129846.5424                                               | 60368.16615             | 99.93751084                                  | 744                | 96605827.54              | 99.79724159                                                 |
| 8       | Nov-19  | 130569.7019                                               | 90431.64                | 99.90380655                                  | 720                | 94010185.39              | 99.81053011                                                 |
| 9       | Dec-19  | 130902.9568                                               | 85246.505               | 99.91247055                                  | 744                | 97391799.83              | 99.82219261                                                 |
| 10      | Jan-20  | 131774.1622                                               | 43356.63678             | 99.95577657                                  | 744                | 98039976.64              | 99.8359882                                                  |
| 11      | Feb-20  | 132392.6286                                               | 80006.74717             | 99.91317325                                  | 696                | 92145269.49              | 99.8428172                                                  |
| 12      | Mar-20  | 132995.1067                                               | 38378.34955             | 99.96121376                                  | 744                | 98948359.39              | 99.85308983                                                 |
|         | Total   |                                                           | 1675397.9955            |                                              |                    | 1140423435.7740          |                                                             |

#### Legend

C=length of line in Ckt KM/MVA Rating of T/F

D=No. of Sub-Conductors per phase/constant factor=2.5 for T/F

H-Total outage hours (Planned Outage + Forced Outage)

Annual TSA for the year 2019-20, as per HERC Formula is:

$100-100 \times \frac{\text{total nominator } H * C * D}{\text{Total Denominator } R * U}$

$100-100 \times \frac{(1675397.9955)}{(1140423435.7740)}$

99.85%

#### Incentive/ (Penalty) Calculation for System Availability for FY 2019-20 (Rs. Million)

| Particulars                            | Formula                                   | Figures      |
|----------------------------------------|-------------------------------------------|--------------|
| Annual Transmission Charges            | ATC                                       | 15197.96     |
| Actual Transmission Availability       | AA                                        | 99.8531%     |
| Normative Transmission Availability    | TA                                        | 99.30%       |
|                                        | $(AA-TA)/TA$                              | 0.005570     |
| <b>Incentives/(Penalties) (Rs. Mn)</b> | <b><math>ATC \times (AA-TA)/TA</math></b> | <b>84.65</b> |

The Petitioner has submitted that the transmission system availability has been higher than the normative availability during FY 2019-20, for which the incentive of Rs. 84.65 Million for FY 2019-20 has been claimed. The Commission has examined the calculations of incentive as submitted by the licensee and finds the same in order. However, the incentive is required to be calculated based on the revised ARR for the FY 2019-20 approved by the Commission on true up. **Accordingly, the incentive for actual availability is approved at Rs. 76.13 million based on the approved annual transmission charges for the FY 2019-20 as under: -**

| Particulars                         | Derivation     | Figures  |
|-------------------------------------|----------------|----------|
| Annual Transmission Charges         | ATC            | 13655.21 |
| Actual Transmission Availability    | AA             | 99.85%   |
| Normative Transmission Availability | TA             | 99.30%   |
|                                     | (AA-TA)/TA     | 0.00557  |
| Incentives/(Penalties) (Rs. Mn)     | ATC*(AA-TA)/TA | 76.13    |

### 3.1.8 FOREIGN EXCHANGE RATE VARIATION (FERV) FOR FY 2019-20

The Petitioner has proposed recovery of FERV, in line with the Commission's order dated 31.03.2016, Clause 3.4.11, whereby the principle of recovery based on cash loss due to FERV has been considered. The details of calculation of FERV, proposed to form part of true up by the licensee are provided in the table below:

| Proposed Calculation of FERV (Rs. Millions)                                       |     |                      |
|-----------------------------------------------------------------------------------|-----|----------------------|
| FERV on installment paid in 2019-20                                               | UOM | Figures (in Million) |
| Amount received (1 <sup>st</sup> installment of loan drawl)                       | USD | 27.61                |
| Repayment up to 31.03.2019                                                        | USD | 27.61                |
| Balance of First Installment                                                      | USD | 0.00                 |
| Amount received (2 <sup>nd</sup> installment of loan drawl)                       | USD | 21.40                |
| Repayment up to 31.03.2019                                                        | USD | 8.23                 |
| Balance of Second Installment                                                     | USD | 13.17                |
| Exchange Rate at the time of payment of 2 <sup>nd</sup> installment               | INR | 44.30                |
| Repayment on 10 <sup>th</sup> installment                                         | USD | 4.56                 |
| Repayment on 11 <sup>th</sup> installment                                         | USD | 4.56                 |
| Exchange rate at the time of payment of 10 <sup>th</sup> instalment-in FY 2019-20 | INR | 68.83                |
| Exchange rate at the time of payment of 9 <sup>th</sup> instalment- in FY 2019-20 | INR | 71.56                |
| FERV on the 10 <sup>th</sup> installment                                          | INR | 111.86               |
| FERV on 11 <sup>th</sup> installment                                              | INR | 124.31               |
| Less: Recovery of capitalized FERV                                                | INR | 98.57                |
| Net FERV on 10 <sup>th</sup> and 11 <sup>th</sup> installment                     | INR | 137.59               |

The Net FERV impact which is being claimed with the True-up for the year FY 2019-20 is Rs. 137.59 Mn. **The calculation of FERV, as submitted by the licensee, has been examined by the Commission and found in order. Hence, the same is being allowed as the true up amount.**

### 3.1.9 NON-TARIFF INCOME FOR FY 2019-20

The Commission has examined the non-tariff income details submitted by the Petitioner and finds the proposed true up of non-tariff income i.e. Rs. 809.19 million in order. However, upon comparing the misc. receipts forming part of non-tariff income proposed for true up with the audited accounts for the FY 2019-20, a difference of Rs. 38 crores was observed. The details of the difference furnished by the licensee are as below:

HERC ORDER ON MYT PETITION FOR DETERMINATION OF ARR FOR TRANSMISSION BUSINESS AND SLDC FOR THE FY 2021-22, TRANSMISSION TARIFF AND SLDC CHARGES FOR THE FY 2021-22, ANNUAL PERFORMANCE REVIEW FOR THE FY 2020-21 & TRUE-UP FOR THE FY 2019-20

| Description                                                                                                                       | Amount<br>(Rs in Crore) | Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Excess Provisions of Expenses on account of Fixed charges of Magnum power Generation for the period from FY 2002-03 to FY 2004-05 | 17.35                   | Amount of Rs. 17.35 crore claimed for the period FY 2002-03 to 2004-05 on account of fixed charges of generating plant by Magnum Power Generation Ltd (MPGL). This amount was kept under the GH 46.999 Misc. Dispute liabilities. The above said case of MPGL was transferred to and was being dealt by the HPPC. HPPC intimated that the Supreme Court of India vide its order dated 21.01.2020 decided that the fixed costs during the currency of the agreement for generating electricity must be paid despite no supply having been made. Further Hon'ble Court directed that the amount demanded by appellant i.e MPGL to be paid by the respondent i.e HPPC. In view of the above, as the liability towards the fixed charges of running the unit is on HPPC, amount of Rs. 17.35 Crores kept under the head Misc. Disputed liabilities written off. |
| Rebate on Timely payment of ULDC                                                                                                  | 2.02                    | Rebate on timely payment of ULDC Charges paid to PGCL, O&M Charges paid to BBMB and Unitary Charges paid to Jhajjar KT Transco Pvt. Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Withdrawal of excess liabilities of Pay in FY 2015-16                                                                             | 16.64                   | An amount of Rs. 16.64 has been booked in excess of liabilities of Pay in FY 2015-16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Unclaimed excess credits more than three years                                                                                    | 1.99                    | Unclaimed Excess credits more than 3 years treated as income under Group Head 62.930.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Total</b>                                                                                                                      | <b>38.00</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Based on the above information, the Commission allows the petitioner to retain Rs. 17.35 crores being not related to transmission business and Rs. 2.02 crores on account of better fund management. The balance amounts are to be adjusted in the ARR on true up. The details of true up proposed and approved are as under:

**Non-Tariff Income Proposed for FY 2019-20 (Rs. Million)**

|           | Particulars                                                | Approved by<br>HERC | HVPNL<br>Proposal | HERC Approval |
|-----------|------------------------------------------------------------|---------------------|-------------------|---------------|
| <b>A</b>  | <b>Income from Investment, Fixed &amp; Call Deposits</b>   | <b>246.04</b>       |                   | <b>809.19</b> |
| 1         | Interest Income from Investment                            |                     |                   |               |
| 2         | Interest on fixed deposits                                 |                     | 114.23            |               |
| 3         | Interest on Staff Advances and Advances                    |                     | 17.64             |               |
| 4         | Interest on IT Refund                                      |                     | 372.14            |               |
| <b>I</b>  | <b>Sub Total</b>                                           |                     | <b>504.00</b>     |               |
| <b>B</b>  | <b>Non-Tariff Income</b>                                   |                     |                   |               |
| 1         | Income from Trading (other than Electricity)               |                     | 11.50             |               |
| 2         | Income /Fee/collection against staff welfare activities    |                     | 0.80              |               |
| 3         | Miscellaneous receipts                                     |                     | 98.28             |               |
| 4         | Penalty charges recovered from contractors and surplus     |                     | 4.60              |               |
| 5         | Interest on other investments                              |                     | 184.81            |               |
| 6         | Interest on Reactive Energy Charges                        |                     | 7.35              |               |
| <b>II</b> | <b>Sub Total</b>                                           |                     | <b>307.33</b>     |               |
|           | Less: NTI from SLDC                                        |                     | 2.15              |               |
|           | <b>Total (I+II)</b>                                        |                     | <b>809.19</b>     |               |
|           | Add: Withdrawal of excess liabilities of Pay in FY 2015-16 |                     | -                 | <b>166.40</b> |
|           | Add: Unclaimed excess credits more than three years        |                     | -                 | <b>19.90</b>  |
|           | <b>Total Non Tariff Income approved</b>                    |                     | <b>809.19</b>     | <b>955.49</b> |

### 3.2 REVENUE FROM TRANSMISSION TARIFF FOR THE FY 2019-20

Based on the Transmission Tariff approved by the Commission for the FY 2019-20, the Licensee has recovered the following amounts from the beneficiaries as per the Audited Accounts:

| Transmission charges recovered for the FY 2019-20        |                   |                         |
|----------------------------------------------------------|-------------------|-------------------------|
|                                                          | As per HERC Order | As per Audited Accounts |
| Total Wheeling charges                                   | 13277.16          | 13277.16                |
| Less revenue refunded to Marino Panel                    |                   | -2.679                  |
| Unitary charges received                                 |                   | 15.751                  |
| Connectivity fee for Transmission system                 |                   | 10.563                  |
| Total Recovery for the credit of Long-Term Beneficiaries |                   | 13300.795               |

### 3.3 APPROVED AND PROPOSED ARR FOR TRUE-UP OF FY 2019-20

Based on the above analysis of various components of the of the ARR, the true-up proposed by the Licensee and revised calculations based on the MYT Regulations and previous Orders of the Commission, the amount to be 'trued-up' is presented in the table below: -

**Table: Revised ARR of Transmission Business for FY 2019-20 (Rs. Million)**

| Particulars                                           | Approved by<br>HERC vide<br>Order dated<br>07.03.2019 | Proposed for<br>True-Up FY<br>2019-20 | Revised ARR<br>approved by<br>the<br>Commission |
|-------------------------------------------------------|-------------------------------------------------------|---------------------------------------|-------------------------------------------------|
| O&M expenses                                          | <b>4,115.36</b>                                       | <b>6,437.82</b>                       | <b>6,290.18</b>                                 |
| <i>R&amp;M Expenses</i>                               | 438.13                                                | 271.71                                | 271.71                                          |
| <i>Employee Expenses</i>                              | 3,465.67                                              | 4,079.48                              | 4,079.48                                        |
| <i>Terminal Benefits</i>                              | (14.10)                                               | 1,657.45                              | 1,657.45                                        |
| <i>A&amp;G Expenses</i>                               | 225.66                                                | 429.18                                | 281.54                                          |
| Depreciation                                          | 3,948.56                                              | 4,005.47                              | 3748.37                                         |
| Interest on Loans                                     | 1,983.36                                              | 2,275.86                              | 2,275.86                                        |
| FERV                                                  |                                                       | 137.59                                | 137.59                                          |
| Interest on working Capital                           | 181.91                                                | 18.38                                 | 18.38                                           |
| <b>Total Expenditure</b>                              | <b>10,229.19</b>                                      | <b>12,875.12</b>                      | <b>12470.38</b>                                 |
| Return on Equity                                      | 2,276.59                                              | 3,132.03                              | 2,180.32                                        |
| Less Non-Tariff Income                                | 246.04                                                | 809.19                                | 995.49                                          |
| <b>Annual Transmission Charges</b>                    | <b>12,259.74</b>                                      | <b>15,197.96</b>                      | <b>13655.21</b>                                 |
| Add: Incentive for TSA                                | -                                                     | 84.65                                 | 76.13                                           |
| Add: Sharing of Benefits @ 60% - IWC                  | -                                                     | 142.44                                | -                                               |
| <b>Net ARR</b>                                        | <b>12,259.74</b>                                      | <b>15,425.05</b>                      | <b>13731.34</b>                                 |
| Add: Revenue Gap for True-up FY 2017-18               | 608.04                                                | 608.04                                | 608.04                                          |
| <b>Aggregate Revenue Requirement</b>                  | <b>12,867.78</b>                                      | <b>16,033.09</b>                      | <b>14339.38</b>                                 |
| Transmission Share of SLDC                            | 5.70                                                  | 12.42                                 | 5.70                                            |
| Unitary Charges for JKTPL                             | 513.17                                                | 522.58                                | 522.58                                          |
| <b>Transmission ARR</b>                               | <b>13,386.65</b>                                      | <b>16,568.09</b>                      | <b>14867.66</b>                                 |
| Less: YTC for Lines Operating As ISTS Lines           | 109.50                                                | 48.21                                 | 48.21                                           |
| Add: ULDC (FOCS) (State Sector)                       | -                                                     | 17.80                                 | 17.80                                           |
| Add: Payment made to Beneficiaries as charge Reversal | -                                                     | 2.84                                  | 0                                               |

| Particulars                       | Approved by<br>HERC vide<br>Order dated<br>07.03.2019 | Proposed for<br>True-Up FY<br>2019-20 | Revised ARR<br>approved by<br>the<br>Commission |
|-----------------------------------|-------------------------------------------------------|---------------------------------------|-------------------------------------------------|
| <b>Total Transmission Charges</b> | <b>13,277.15</b>                                      | <b>16,540.52</b>                      | <b>14837.25</b>                                 |

**True Up of Transmission Business for FY 2019-20 (Rs. Million)**

|                                                                    |                 |
|--------------------------------------------------------------------|-----------------|
| Transmission ARR approved by the Commission for True up            | <b>14837.25</b> |
| Total Revenue Recovered as per Audited Accounts                    | 13,300.80       |
| ARR Surplus/(Gap)                                                  | -1536.45        |
| Less terminal benefits on which carrying cost is not to be allowed | 1,657.45        |
| ARR gap on which carrying cost is to be allowed                    | 0               |

The Commission observes that as the ARR gap for FY 2019-20 at Rs 1536.45 is less than the terminal benefits of Rs 1657.45, no carrying cost is allowed to the petitioner as already discussed at page no 21 of this order.

### 3.4 TRUE-UP OF SLDC BUSINESS FOR FY THE 2019-20

The Licensee has submitted and prayed to the Commission that the ARR for SLDC Business for FY 2019-20 based on actual figures, may be approved for the true up of **Rs. 155.21 Million**.

**True Up Requirement of SLDC Business for FY 2019-20 (Rs. Millions)**

| S. No. | Particulars                 | Approved by HERC | Actual        | Gap Surplus/ (Deficit) |
|--------|-----------------------------|------------------|---------------|------------------------|
| 1      | Employees Cost              | 46.93            | 49.49         | (2.56)                 |
| 2      | A&G expenses                | 9.21             | 8.11          | 1.10                   |
| 3      | R&M Expenses                | 8.23             | 8.94          | (0.71)                 |
| 4      | Depreciation                | 3.68             | 41.05         | (37.37)                |
| 5      | Interest on working Capital | 2.50             | 2.58          | (0.08)                 |
| 6      | Return on Equity            | -                | 47.19         | (47.19)                |
| 7      | Less: Non-Tariff Income     | 1.28             | 2.15          | (0.87)                 |
|        | <b>TOTAL</b>                | <b>71.29</b>     | <b>155.21</b> | <b>(83.92)</b>         |

The Commission has examined the true up proposal submitted by the licensee as against the segregated accounts forming part of the audited accounts for the FY 2019-20 and the principles adopted while determining the ARR for SLDC business vide its Order dated 07.03.2019. Based on these parameters, the revised ARR for SLDC business for the FY 2019-20 is approved at Rs. 105.45 million as against Rs. 71.29 million approved by the Commission. Accordingly, the licensee may recover the differential amount along with the SLDC charges for the FY 2021-22. The difference between the amount proposed by HVPNL and that estimated by the Commission is primarily on account of Interest and RoE. The ARR approved by the Commission, true up

proposed by the licensee and the amount approved by the Commission for true-up is summarized below:

**True Up of SLDC Business for FY 2019-20 (Rs. Million)**

| S. No | Particulars                 | Approved by HERC | Actual        | Revised ARR approved by the Commission |
|-------|-----------------------------|------------------|---------------|----------------------------------------|
| 1     | Employees Cost              | 46.93            | 49.49         | 49.49                                  |
| 2     | A&G expenses                | 9.21             | 8.11          | 8.11                                   |
| 3     | R&M Expenses                | 8.23             | 8.94          | 8.94                                   |
| 4     | Depreciation                | 3.68             | 41.05         | 41.05                                  |
| 5     | Interest on working Capital | 2.50             | 2.58          | -                                      |
| 6     | Return on Equity            | -                | 47.19         | -                                      |
| 7     | Less: Non-Tariff Income     | 1.28             | 2.15          | 2.15                                   |
|       | <b>TOTAL</b>                | <b>71.29</b>     | <b>155.21</b> | <b>105.45</b>                          |

### 3.5 REVIEW OF AGGREGATE REVENUE REQUIREMENT FOR FY 2020-21 AND CAPITAL EXPENDITURE PLAN FOR FY 2021-22 TO FY 2024-25

HVPNL has submitted that the HERC vide notification dated 31.10.2019 has notified the Haryana Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Generation, Transmission, Wheeling and Distribution & Retail Supply under Multi Year Tariff Framework) Regulations, 2019 for the Control Period FY 2020-21 to FY 2024-25. The STU/HVPN is required to file for Annual Performance Review (APR) in line with Regulation 11(5) of the MYT Regulations, 2019. The relevant extract of the regulation is as under:

*11.5 The scope of the mid-year performance review shall be a comparison of the performance of the generation company and the licensees for the relevant financial year with the approved forecast of ARR for their respective businesses and the performance targets specified by the Commission. Upon completion of the mid-year performance review and truing up as per regulation 13, the Commission shall pass an order recording:*

- The revised approved ARR for such financial year including approved modifications, if any;*
- The approved aggregate gain or loss on account of controllable items and sharing of such gains or losses;*
- Truing-up or pass through of uncontrollable items of ARR of previous year(s);*
- Pass through of variations in controllable items due to force majeure events, if any.*
- Pass through of variations in controllable items attributable to uncontrollable factors.*
- Tariff applicable for the ensuing year.*

The petitioner vide ibid Petition has requested the Commission to consider the revised estimates of ARR for FY 2020-21 including revised capital expenditure and Proposed Capital Expenditure Plan for the control period FY 2021-22.

### **3.6 REVISED CAPITAL EXPENDITURE AND CAPITALIZATION FOR FY 2020-21 AND PROPOSED CAPITAL EXPENDITURE PLAN FOR CONTROL PERIOD FY 2021-22**

The Petitioner has submitted that Capital expenditure is essential for meeting demand growth and prompt upkeep of the network on sustained basis. Capital expenditure is incurred, when a business spends money either to buy fixed assets or to add to the value of an existing fixed asset with a useful life extension to deter investments. The Capex schemes have been integral part of the transmission planning and are core to the business of the utility. Keeping this in mind, utilities aim to invest in the right schemes, which have higher returns.

HVPN has invested in capital each year with a single-minded focus to improve the existing system through creation of additional load capacity along with augmentation, maintenance and strengthening to improve the existing system. In line with the Capital expenditure requirements the petitioner had earlier submitted a Capital Expenditure plan for the period FY 2020-21 to FY 2024-25. The Commission had approved the Capital Expenditure Plan for entire Control Period. However, because of uncontrollable Parameters like the Pandemic of COVID-19, the schedules are slightly changed and now the revised Capital Expenditure of FY 2021-22 along with revised Capital Expenditure Requirement for FY 2020-21 is submitted by HVPNL for the consideration of the Commission.

It has been further submitted that HVPN, being the State transmission utility (STU) of Haryana, has to manage a large transmission system which is expected to increase rapidly in the years that follow. To ease the monitoring of the system, the administration and management of the transmission system of HVPNL has been divided into two zones, namely Hisar and Panchkula, with each zone comprising of three circles. The Hisar Zone comprises of Hisar, Gurugram and Faridabad Circles, while the Panchkula Zone is divided in Panchkula, Karnal and Rohtak circles. The circles are further divided into divisions.

HVPNL has prepared the capex plan taking into consideration all the factors which would affect the operations of the company. The capex plan includes the details of various capital expenditure schemes in the above identified areas and their respective estimates for FY 2021-22.

The capital investments of HVPNL can largely be categorized in following areas:

1. Investments in New Transmission Infrastructure to support the demand requirements or power evacuation from generation projects.
2. System augmentation and strengthening including renovation and modernization to maintain the performance of the existing system and to deter investments.

The planning department of HVPN receives inputs from field offices and the Distribution Companies on investment requirement for meeting growth on annual basis which formulate core of the capital expenditure plan. The transmission planning wing of HVPN consistently monitors loading of transformers and transmission lines so as to promptly address any constraints. Further load flow analysis is also being carried out to derive scientific evidences to strengthen capital investment plan proposals.

The petitioner requests the Commission to approve the revised capital expenditure for FY 2020-21 and proposed Capital Expenditure Plan for the Period FY 2021-22 as submitted. The sub-sections detail out the capital expenditure are as under:

#### **A. Transmission System Business**

The capital investment plan for the transmission business has been divided in the following key areas, based on the nature of capital works:

- i. Transmission lines
- ii. Sub station
- iii. Information technology initiatives
- iv. Land & Right of Way expenses
- v. Miscellaneous works including civil works, procurement of thermo-vision cameras, testing equipment, contingency capital works.

The following table provides the work wise expenditure for period of FY 2020-21 to 2021-22. The details of the works are provided as part of the Annexure to this Petition.

**Work-wise expenditure for period FY 2020-21 & FY 2021-22 (Rs. Million)**

| <b>Works</b>           | <b>2020-21</b> | <b>2021-22</b> |
|------------------------|----------------|----------------|
| Substation             | 5554.36        | 5029.51        |
| Lines                  | 2338.76        | 3689.78        |
| Information Technology | 79.34          | 63             |
| Land                   | 8.72           | 10.43          |
| Miscellaneous          | 200.00         | 200.00         |

| Works        | 2020-21        | 2021-22        |
|--------------|----------------|----------------|
| <b>Total</b> | <b>8181.18</b> | <b>8992.71</b> |

Considering the efficient performance of HVPN in past, with low transmission loss and high system availability, HVPNL has focused on catering to the increasing demand in the State.

The Licensee is committed towards making quality power supply available and further improving the reliability by augmenting or strengthening of the existing transmission system.

New substations have been planned along with the requisite lines, while older, inefficient equipment at the existing stations has been considered for replacement with modern and efficient equipment. New transmission lines are planned for power evacuation, meeting the load demand, and the current lines will be strengthened and renovated as required. It is planned that the capital expenditure will be focused mainly on meeting the increasing demand and after meeting the demand, the focus will shift towards the maintenance and upkeep of the network for uninterrupted transmission of power. Further meticulous planning has been put in to ensure effective modernization of the system through IT implementation and negotiate problems and delays faced on account of Land and Right of Way issues.

In the following sub-sections, the details of the capital expenditure in the five broad categories, discussed above, are presented with key objectives.

## **B. Substations**

In the two zones, many new substations have been planned to augment the existing system and make it robust. It is submitted that adequate infrastructure is required to ensure that unforeseen breakdowns in system do not have any adverse impact on the availability of overall transmission system. Therefore, the capacity addition and the necessary expenditure are planned in manner to create enough redundancies in the system considering the state of existing infrastructure and growth in power demand. The expenditure related to proposed substations in two transmission zones is summarized in the table below:

The capital expenditure proposed above is likely to be incurred not only towards strengthening the existing substation infrastructure but also to create new substation capacity.

| <b>Expenditure planned for new substations (in Rs. Million)</b> |                |                |
|-----------------------------------------------------------------|----------------|----------------|
| <b>Substations</b>                                              | <b>2020-21</b> | <b>2021-22</b> |
| Panchkula Zone                                                  | 1941.35        | 1610.17        |

| Substations  | 2020-21        | 2021-22        |
|--------------|----------------|----------------|
| Hisar Zone   | 3613.01        | 3419.34        |
| <b>Total</b> | <b>5554.36</b> | <b>5029.51</b> |

### C. Transmission Lines

A number of new transmission lines have been proposed together with repair and maintenance activities for the existing lines. The year-wise expenditure planned on the transmission lines in the two zones has been presented in the table below:

**Table: Expenditure planned for Transmission lines (in Rs. Million)**

| Transmission Lines | 2020-21        | 2021-22        |
|--------------------|----------------|----------------|
| <b>Total</b>       | <b>2338.76</b> | <b>3689.78</b> |

The main purposes for the expenditures on transmission line is to deport bulk amount of power near to load centers with focus on creating redundancy by means of improvement/strengthening, supporting the load growth and facilitating the evacuation of power from the newly Commissioned generating plants.

### D. Information Technology

The expenditure on information technology is planned with the intention of equipping the personnel with tools to monitor and handle the transmission system efficiently and to access real time data for online system monitoring.

**Expenditure planned for Information Technology (in Rs. Million)**

| Information Technology | 2020-21      | 2021-22   |
|------------------------|--------------|-----------|
| <b>Total</b>           | <b>79.34</b> | <b>63</b> |

### E. Land

Land acquisition and RoW settlements occupy major proportion of total capital investment plan. The yearly expenditure is presented in the table below.

**Capital Investment plan for Land Acquisition & ROW settlements (in Rs. Million)**

| Land         | 2020-21     | 2021-22      |
|--------------|-------------|--------------|
| Panchkula    | 4.28        | 5.89         |
| Hisar        | 4.44        | 4.54         |
| <b>Total</b> | <b>8.72</b> | <b>10.43</b> |

## F. Miscellaneous Items

Miscellaneous works include civil works, one-time procurement of testing and T&P equipment, replacement of conventional insulator with polymer / Anti Fog insulator, damage of tower etc. due to windstorm / Augmentations etc.

### Expenditure planned for miscellaneous items (in Rs. Million)

| Miscellaneous | 2020-21 | 2021-22 |
|---------------|---------|---------|
| Total         | 200     | 200     |

## G. Funding Pattern

HVPN has sought to utilize debt that is available at a low cost to ensure that the burden on the beneficiaries can be minimized. HVPNL has negotiated with the financing institutions and ensured that the cost of capital is low and the terms of debt are favorable to the Company.

### Funding Pattern (in Rs. Million)

| Financial Institution | FY 2020-21 | FY 2021-22 |
|-----------------------|------------|------------|
| NABARD                | 1,007.52   | 1,263.41   |
| REC                   | 3,053.77   | 2,044.44   |
| JICA                  | 27.25      | -          |
| NCPRB                 | 51.73      | 7.4        |
| PFC                   | 1,410.43   | 1,300.05   |
| World Bank            | 240.09     | 225.01     |
| Yet to be Posed       | 754.15     | 2,353.86   |
| Debt                  | 6,544.94   | 7,194.17   |
| Equity                | 1,636.24   | 1,798.54   |
| Total Capex           | 8,181.18   | 8,992.71   |

HVPN has submitted revised Capex proposal for FY2020-21 to FY2024-25 as under:

### Capital Investment Plan (Rs. Million)

| Particulars | Actual Investment | Proposed   | Proposed   | Proposed   | Proposed   | Proposed   |
|-------------|-------------------|------------|------------|------------|------------|------------|
|             | FY2019-20         | FY 2020-21 | FY 2021-22 | FY 2022-23 | FY 2023-24 | FY 2024-25 |
| HVPNL       | 7339.45           | 8,181.18   | 8,992.71   | 5,162.45   | 4,985.07   | 3,116.74   |
| SLDC        | 16.41             | 121.46     | 276.50     | 300.00     | 150.00     | 0.00       |
| Total       | 7355.86           | 8302.64    | 9269.21    | 5462.45    | 5135.07    | 3116.74    |

The Commission has taken into consideration the Capital Investment projections for the control period for FY 2021-22 only, from the CIP submitted by the HVPNL for the control period FY 2021-22 to FY 2024-25, for the approval of the ARR of the transmission business and SLDC and the transmission and SLDC charges for FY 2021-22. The projection of CIP for FY 2021-22 and

onwards shall be considered while considering ARR for FY 2021-22 onwards. The table below shows the Capital expenditure projected by HVPNL, approved by HERC & the actual expenditure on capital works.

**Capital expenditure projected by HVPNL, Approved by HERC & the Actual Expenditure on Capital Works.**

| FY      | Projected Expenditure by HVPNL (Rs. million)                                                                        | Expenditure approved by HERC (Rs. million) | Actual Expenditure (Rs. million) | % of actual w.r.t. approved expenditure (Rs. million) |
|---------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------|-------------------------------------------------------|
| 2016-17 | 9558<br>(10362 as per APR) 9814<br>(rev.) 12.02.2015<br>9965 envisaged 26.11.2015<br>6579 (Envisaged<br>30.01.2017) | 7182<br>rev. approved<br>31.03.2015        | 4622                             | 64%                                                   |
| 2017-18 | 9299<br>6025 (rev.)                                                                                                 | 7332                                       | 3640                             | 49.65%                                                |
| 2019-20 | 11315.76                                                                                                            | 7921                                       | 7885<br>(Including IDC)          | 99.5%                                                 |
| 2020-21 | 10113.12<br>12002 (rev.)                                                                                            | 8500                                       |                                  |                                                       |

The Commission observes that HVPNL had incurred expenditure of Rs. 4622 million on Capital works against Capex of Rs.7182 million approved by the commission during FY 2016-17 which is about 64% of the approved capital Investment Plan. Further, the licensee in capital expenditure plan for FY 2017-18, had projected an expenditure of Rs.9299 million, but the Commission, in view of the past performance of the licensee, approved Rs.7332 million for this period. However, HVPNL could achieve progress of Capex Rs3640 million (excluding IDC) only during FY 2017-18 which is 49.65% of the approved Capital Expenditure Plan. It is observed that there exists significant gap in the Capex envisaged and execution of the Capital Works. The Licensee needs to review the methodology of projecting Capex and closely monitor financial and physical progress. Hence, projections have to be necessarily realistic and implementable within the given time frame, funds available and expected benefit to flow from such works.

Further, the Petitioner had proposed Capex of Rs. 11316 million for the FY 2019-20. in its filing dated 25.01.2018 for ARR and Tariff Petition for FY 2019-20. Whereas the Commission approved an amount of Rs. 7921 million for transmission business and Rs. 500 million for SLDC for this period. The licensee has reported progress of Rs 7885 million during FY2019-20 which is 99.5% of the capex approved and about 70% of the Capex envisaged in the filing.

HVPN had projected Capital Expenditure of Rs.10113.16 million for FY2020-21, whereas the Commission after considering the past performance of the licensee had approved Rs. 8500 million and directed the licensee to submit the revised Capax schedule for FY 2020-21. The licensee was also directed to place physical and financial progress of the major capital works of the value exceeding Rs. 20 Crore each on its website for information of the public.

The Licensee vide its instant Petition has submitted the revised capital investment plan of Rs.12001.96 million for FY2020-21 and proposed Rs. 12064 million Capex during FY2021-22.

**The Commission, in view of foregoing discussions, approves Capex for FY2021-22 at Rs.9250 million keeping in view the past performance of HVPNL and retains the Capex for the FY2020-21 as approved in its Order dated 07.03.2019. However, the Commission may consider re-visiting the same at the time of its true-up based on the audited figures.**

#### **H. Intra-State Transmission Losses**

The Petitioner has submitted that as per Regulations, Commission specifies the trajectory for intra-state transmission loss based on the approved capital investment plan in the MYT order; Further, the losses shall be borne by the beneficiaries in kind. The SLDC reduces the demand scheduled by the beneficiaries during each time block by the 12 months rolling transmission losses (the 12 months period is preceding the relevant month by 3 months). The SLDC is required to post the rolling 12 months losses regularly on its website. The SLDC, however, is to develop necessary software for working out rolling 52-week losses and reduce the scheduled demand accordingly thereafter. Further, if the actual annual transmission losses (%) exceed the benchmark value (%) approved by the Commission, the licensee(s) is penalized.

#### **I. Transmission Losses**

The Commission fixed the Intra-State losses for control period from FY 2020-21 to FY 2024-25, subject to penalty clause in line with HERC MYT Regulations 2019 which is as under:

| Year   | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|--------|---------|---------|---------|---------|---------|
| Losses | 2.15    | 2.10    | 2.05    | 2.02    | 2.0     |

#### **J. Trends in Transmission Losses**

Reductions in transmission losses are an important objective under section 26(2)(b) and (c) of the Act and tariff determinations will need to take account of such reductions. The plans for reducing losses, together with relevant load flow studies and details of the investment required to

achieve the planned reductions should be presented & shall substantiated by relevant analysis as to achievability and cost. During 11<sup>th</sup> Five Year Plan (2007-12) capital expenditure incurred by the HVPNL is Rs 4111.7Crore. With the system strengthening, average transmission losses are on decreasing order as indicated in the table below:

| <b>Transmission losses</b> |                                    |                                            |                               |
|----------------------------|------------------------------------|--------------------------------------------|-------------------------------|
| <b>Period</b>              | <b>Target fixed by HERC (in %)</b> | <b>Intra-state Transmission Losses (%)</b> | <b>Energy Handled (in LU)</b> |
| 2005-06                    | -                                  | 2.77                                       | 212490                        |
| 2006-07                    | -                                  | 2.35                                       | 238630                        |
| 2007-08                    | 2.6                                | 2.44                                       |                               |
| 2008-09                    | 2.1                                | 2.57                                       | 284310                        |
| 2009-10                    | 2.1                                | 2.68                                       | 312740                        |
| 2010-11                    | 2.1                                | 2.63                                       | 344020                        |
| 2011-12                    | 2.1                                | 2.76                                       | 363631                        |
| 2012-13                    | 2.5                                | 2.494                                      | 380431                        |
| 2013-14                    | 2.5                                | 2.737                                      | 428485                        |
| 2014-15                    | 2.5                                | 2.615                                      | 464758                        |
| 2015-16                    | 2.48                               | 2.698                                      | 478718                        |
| 2016-17                    | 2.46                               | 2.311                                      | 492195                        |
| 2017-18                    | 2.44                               | 2.259                                      | 508710                        |
| 2018-19                    | 2.42                               | 2.055                                      | 515146                        |
| 2019-20                    | 2.40                               | 2.065                                      | 539731                        |
| 2020-21(till Sep, 2020)    | 2.15                               | 2.156                                      | 291859                        |

*\* based on provisional energy account of Sep, 2020*

It is also submitted that the HVPNL has been able to limit the Transmission Losses vis-à-vis Target to some extent from FY 2016-17 onwards as well as trying to reduce the losses further. The Commission in the past had been restricting the Transmission losses and is not allowing the actual losses though the loss figure achieved by HVPNL is very less as compared with other best performing utilities. The commission vide Tariff Order dated 07.03.2019 has allowed the actual transmission losses for FY 2018-19 and FY 2019-20 as requested by the Licensee. However, the commission has directed that the licensee must put in sincere and concerned efforts to bring transmission losses below 2.40% in FY 2019-20 positively. Further, the Commission vide tariff order dated 21.05.2020 has approved the transmission losses as 2.15% for the FY 2020-21 as per the MYT Regulations, 2019.

It is further submitted that the losses in HVPNL is less than 3% and HVPNL transmission system comprises of 400 kV, 220 kV and 132 kV Transmission Lines. The percentage losses increase with increase in line length and also percentage losses are higher at lower voltage levels. The HVPNL submitted that best efforts are being made to achieve low Transmission Loss levels and

Loss reduction beyond the current level entirely depends on the users of the Transmission Network.

Further the state transmission losses are purely technical losses and are due to energy dissipated in the conductors and equipment used for transmission, transformation, sub-transmission. These technical losses are inherent in a system and cannot be reduced beyond an optimum level. The losses can be further sub-grouped depending upon the stage of power transformation & transmission system as Transmission losses (400kV/220kV/132kV/66kV). Further the inter-state transmission losses over a given transmission system keep varying over time depending upon power flows, voltage profile, reactive flows, pattern of energy use, load demand, load density and capability & configuration of transmission system etc. The transmission system owner has little control over these, except that outage of a transmission element increases power flow on parallel path which affects losses. The Central Electricity Regulatory Commission is also of the similar view and has categorically indicated in the proposed approach for sharing of charges and losses in interstate transmission system that transmission losses are the phenomenon of physics and are unavoidable.

Also, according, to a study carried out by Electric Power Research Institute (EPRI) of the USA some time back, (referred in 17<sup>th</sup> Power survey report of CEA) the losses in various elements of the Transmission system usually are of the order as indicated below: -

| System element                                                                                                  | Power losses (%) |         |
|-----------------------------------------------------------------------------------------------------------------|------------------|---------|
|                                                                                                                 | Minimum          | Maximum |
| Step-up transformers & EHV transmission system                                                                  | 0.5              | 1.0     |
| Transformation to intermediate voltage level, transmission system & step down to sub-transmission voltage level | 1.5              | 3.0     |
| Sub-transmission system & step-down to distribution voltage level                                               | 2.0              | 4.5     |

Further, the Nigam BOD is also monitoring the Transmission Losses for which a memorandum is being put up regularly in BOD meeting.

The month wise transmission losses of HVPN during FY 2019-20 and FY 2020-21 is as under: -

**Intra-State transmission losses FY 2019-20 and FY 2020-21**

| Month | 2019-20                                    |                                       |                                         | 2020-21                                    |                                  |                                      |
|-------|--------------------------------------------|---------------------------------------|-----------------------------------------|--------------------------------------------|----------------------------------|--------------------------------------|
|       | Total Energy at state Bus from all sources | Intra State Transmission Losses in LU | Intra State Transmission on losses in % | Total Energy at state Bus from all sources | Intra State Transmission) losses | Intra State Transmission losses in % |
| April | 37751.84203                                | 750.72913                             | 1.989                                   | 25170.98804                                | 559.02975                        | 2.221                                |
| May   | 48921.89554                                | 786.26979                             | 1.607                                   | 38848.95003                                | 731.56796                        | 1.883                                |
| June  | 57255.09724                                | 1234.17203                            | 2.156                                   | 51411.90547                                | 1118.05179                       | 2.175                                |
| July  | 59518.88411                                | 1197.77578                            | 2.012                                   | 58884.58167                                | 1410.78952                       | 2.396                                |
| Aug   | 58992.36190                                | 1216.82444                            | 2.063                                   | 57451.99453                                | 1154.33549                       | 2.009                                |
| Sept  | 59566.10715                                | 1237.04919                            | 2.077                                   | 60091.13568                                | 1318.50231                       | 2.194                                |

|              |             |            |       |                     |                   |       |
|--------------|-------------|------------|-------|---------------------|-------------------|-------|
| Oct          | 43049.86427 | 892.61641  | 2.073 |                     |                   |       |
| Nov          | 33490.90810 | 842.41584  | 2.515 |                     |                   |       |
| Dec          | 37011.37938 | 801.07800  | 2.164 |                     |                   |       |
| Jan          | 38707.34581 | 808.52388  | 2.089 |                     |                   |       |
| Feb          | 36931.85816 | 805.67530  | 2.182 |                     |                   |       |
| March        | 28533.49959 | 570.08648  | 1.998 |                     |                   |       |
| Total losses | 539731.04   | 11143.2163 | 2.065 | <b>291859.55542</b> | <b>6292.27683</b> | 2.156 |

\* (Up- to Sep. 2020)

The Commission observes that the Intra State Transmission losses for FY 2017-18 and FY 2018-19 and FY2019-20 have been 2.259%, 2.055% and 2.065% against the target of 2.44%, 2.42% and 2.40% respectively. Further, these losses for FY 2020-21 (up to Sep. 2020) have been reported 2.156% against a target of 2.150%.

In compliance of Commission's directive "The month wise energy drawl by the Discoms and the corresponding intra state losses in the FY 2019-20 do not strictly correlate e.g. in the month of April the total drawl of the Discoms has been reported as 36955.67 LU and the corresponding inter-state transmission losses has been shown as 2.109% while during the immediate next month the total energy drawl by the Discoms increased to 48118.77 LU and the intra-State Losses decreased to 1.642%. HVPNL may analyse such aberrations as the technical losses vis-à-vis energy transmitted ought not to defy the law of physics unless the same can be explained by way of other intervening factor(s) including system improvement flowing from Capex undertaken for the purpose. ", HVPNL vide a letter dated 28.09.2020 has submitted that the concerns expressed by the Commission i.e. aberrations as the technical losses vis-a-vis energy transmitted ought not be defy the law of physics, has been noted down and analysis thereupon is submitted as under:

The energy accounts of State boundary meters are prepared by NRLDC and the energy accounts of intrastate meters interface with Discoms and state generators are prepared by HVPNL and thereafter the intrastate transmission losses are worked out.

#### **R-Factor: -**

The load losses (variable losses) are widely denoted as  $I^2R$  in electrical system. The term "**I**" denotes the quantum of current. The term "**R**" denotes resistance, which also signifies the distance travelled by the current.

- Energy requirement of State is being met by the energy generated in the State as well as energy drawn from inter- state points (tied up with the generators outside the state). The drawl points vis-à-vis load centers in the State affect the intra state

transmission losses considerably. The energy data (April, 2019 to June, 2020) tabulated below has been analyzed.

- For the month of December 2019, January, 2020 and February, 2020, the pattern of total energy consumption of the State and energy drawn through interstate and intrastate points is almost uniform and further, the climate conditions more or less remain same during these months. Very small variance in percentage of total intrastate losses during these months have been noticed.
- In the month of November, 2019, component of intrastate generation is considerably reduced then intra state transmission losses are noted to be very high.

The above analysis broadly substantiates the theory of physics that  $I^2R$  losses depends upon distance between drawl points and load centres:

| Month  | Total Energy (X=Y+Z) (LUs) | Drawl of Power at State Bus from CG S/ IEX/Bilateral (Interstate Power) (Y) | Intrastate Generated power (Z) | Interstate Power/ total Power (Y)/(X) in % | Intrastate generated power/total power (Z)/(X) in % | Intra State Transmission Losses in LU | Intra State Transmission Losses in % |
|--------|----------------------------|-----------------------------------------------------------------------------|--------------------------------|--------------------------------------------|-----------------------------------------------------|---------------------------------------|--------------------------------------|
| Apr-19 | 37751.8420                 | 28254.4871                                                                  | 9497.3549                      | 74.8427                                    | 25.1573                                             | 750.7291                              | 1.9883                               |
| May-19 | 48921.8955                 | 36322.4031                                                                  | 12599.4924                     | 74.2457                                    | 25.7543                                             | 786.2698                              | 1.6072                               |
| Jun-19 | 57255.0972                 | 39330.5504                                                                  | 17924.5468                     | 68.6935                                    | 31.3065                                             | 1234.1720                             | 2.1555                               |
| Jul-19 | 59518.8841                 | 45869.0973                                                                  | 13649.7868                     | 77.0665                                    | 22.9335                                             | 1197.7758                             | 2.0124                               |
| Aug-19 | 58992.3619                 | 47969.7691                                                                  | 11022.5928                     | 81.3152                                    | 18.6848                                             | 1216.8244                             | 2.0625                               |
| Sep-19 | 59566.1071                 | 44806.4890                                                                  | 14759.6181                     | 75.2214                                    | 24.7786                                             | 1237.0492                             | 2.0767                               |
| Oct-19 | 43049.8643                 | 34264.6034                                                                  | 8785.2609                      | 79.5928                                    | 20.4072                                             | 892.6164                              | 2.0735                               |
| Nov-19 | 33490.9081                 | 30559.7784                                                                  | 2931.1297                      | 91.2480                                    | 8.7520                                              | 842.4158                              | 2.5175                               |
| Dec-19 | 37011.3794                 | 27559.6926                                                                  | 9451.6867                      | 74.4628                                    | 25.5372                                             | 801.0780                              | 2.1639                               |
| Jan-20 | 38707.3458                 | 26248.6937                                                                  | 12458.6521                     | 67.8132                                    | 32.1868                                             | 808.5239                              | 2.0888                               |
| Feb-20 | 36931.8582                 | 25269.1232                                                                  | 11662.7350                     | 68.4209                                    | 31.5791                                             | 805.6753                              | 2.1834                               |
| Mar-20 | 28533.4996                 | 23517.7455                                                                  | 5015.7540                      | 82.4215                                    | 17.5785                                             | 570.0865                              | 1.9980                               |
| Apr-20 | 25170.9880                 | 23490.7615                                                                  | 1680.2265                      | 93.3247                                    | 6.6753                                              | 559.0298                              | 2.2209                               |
| May-20 | 38848.9500                 | 34283.2943                                                                  | 4565.6557                      | 88.2477                                    | 11.7523                                             | 731.5680                              | 1.8830                               |
| Jun-20 | 51411.8946                 | 39195.6726                                                                  | 12216.2220                     | 76.2385                                    | 23.7615                                             | 1118.0518                             | 2.1740                               |

#### Contribution of “No Load Losses” component of Power transformer: -

In transmission system, the losses are mainly categorized in two categories i.e. No load losses (fixed losses) and load losses (variable losses). The No load losses almost remain constant irrespective of quantum of energy transmitted through the system. Although, these losses are affected by the voltage and frequency but to the least extent as grid parameters i.e. voltage and frequency have negligible variations.

- Transmission Lines and Power Transformers are two major elements of any Transmission system. Transformers are designed with firm no load losses and transmission lines also have intrinsic magnetizing losses. No load losses of these elements shall remain in the transmission system irrespective of quantum of energy transmitted. The impact of no-load losses vis-a-vis total energy has been demonstrated in the table given below:

| *Family of transformers                                           | Nos.<br>(A)  | No load losses in Kw (as per Tech. specifications) per transformer<br>(B) | No load energy losses per day (kwh)(C)<br>(A x B) x 30 | No load energy losses in month (LU)<br>(C x 24) /10 <sup>5</sup> |
|-------------------------------------------------------------------|--------------|---------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------|
| 315 MVA 400/220kv                                                 | 15           | 86                                                                        | 30960                                                  | 9.288                                                            |
| 160MVA 220/132kv                                                  | 6            | 40                                                                        | 5760                                                   | 1.728                                                            |
| 160MVA 220/66kv                                                   | 14           | 70                                                                        | 23520                                                  | 7.056                                                            |
| 100MVA 220/132kv                                                  | 100          | 24                                                                        | 57600                                                  | 17.28                                                            |
| 100MVA 220/66kv                                                   | 54           | 44                                                                        | 57024                                                  | 17.1072                                                          |
| 100MVA 220/33kv                                                   | 31           | 50                                                                        | 37200                                                  | 11.16                                                            |
| 50MVA 132/33kv                                                    | 85           | 25                                                                        | 51000                                                  | 15.3                                                             |
| 25MVA 132/33kv                                                    | 197          | 11.5                                                                      | 54372                                                  | 16.3116                                                          |
| 20MVA132/33kv                                                     | 25           | 11.5                                                                      | 6900                                                   | 2.07                                                             |
| 16MVA132/33kv                                                     | 9            | 11.5                                                                      | 2484                                                   | 0.7452                                                           |
| 20MVA132/11kv                                                     | 76           | 14                                                                        | 25536                                                  | 7.6608                                                           |
| 16 MVA 132/11kv                                                   | 182          | 14                                                                        | 61152                                                  | 18.3456                                                          |
| 31.5 MVA 66/11kv                                                  | 159          | 15                                                                        | 57240                                                  | 17.172                                                           |
| 20MVA 66/11kv                                                     | 14           | 14                                                                        | 4704                                                   | 1.4112                                                           |
| 12.5/16MVA 66/11kv                                                | 167          | 11                                                                        | 44088                                                  | 13.2264                                                          |
| up to 25MVA 66/33kv                                               | 11           | 14                                                                        | 3696                                                   | 1.1088                                                           |
| other small ratings*                                              | 35           | 10                                                                        | 8400                                                   | 2.52                                                             |
| <b>Total</b>                                                      | <b>1180</b>  |                                                                           |                                                        | <b>159.4908</b>                                                  |
| <b>Apr-20</b>                                                     |              |                                                                           |                                                        |                                                                  |
| Total Energy at state bus (LU)                                    | 25170.988    |                                                                           |                                                        |                                                                  |
| Total Energy drawl by DISCOM (LU)                                 | 24611.958    |                                                                           |                                                        |                                                                  |
| Total Energy loss in (LU)                                         | 559.03       |                                                                           |                                                        |                                                                  |
| <b>% losses</b>                                                   | <b>2.221</b> |                                                                           |                                                        |                                                                  |
| No load Energy loss in (LU) as noted in column-D of the table     | 159.491      |                                                                           |                                                        |                                                                  |
| <b>Component of No-load loss vs Total energy at state bus (%)</b> | <b>0.63</b>  |                                                                           |                                                        |                                                                  |
| <b>May-20</b>                                                     |              |                                                                           |                                                        |                                                                  |
| Total Energy at state bus (LU)                                    | 38848.95     |                                                                           |                                                        |                                                                  |
| Total Energy drawl by DISCOM (LU)                                 | 38117.382    |                                                                           |                                                        |                                                                  |
| Total Energy loss in (LU)                                         | 731.568      |                                                                           |                                                        |                                                                  |
| <b>% losses</b>                                                   | <b>1.883</b> |                                                                           |                                                        |                                                                  |
| No load Energy loss in (LU)                                       | 159.491      |                                                                           |                                                        |                                                                  |
| <b>Component of No-load loss vs Total energy at state bus (%)</b> | <b>0.41</b>  |                                                                           |                                                        |                                                                  |

From the above table, it is derived that impact of component of No-load losses reflects more in case of lesser energy transmitted, besides creeping in of intrinsic magnetizing losses of the transmission lines.

The voltage profile also affects the technical losses and HVPNL has very little control on the grid voltage.

In order to further analyze the relationship between technical losses vis-a-vis energy transmitted, the data of Northern Region (NR) was also got collected from NRLDC (Northern Region Load Dispatch Centre). The said data is reproduced as under:

| Week              | Average NR total Injection (MW) | Average NR total Drawl (MW) | Average NR losses (MW) | Average NR loss (%) |
|-------------------|---------------------------------|-----------------------------|------------------------|---------------------|
| 16.12.19-22.12.19 | 19435.01                        | 18694.00                    | 741.01                 | 3.96%               |
| 13.04.20-19.04.20 | 17002.16                        | 16446.93                    | 555.23                 | 3.34%               |
| 24.08.20-30.08.20 | 30606.79                        | 29704.78                    | 902.01                 | 2.95%               |

The above data also reveals that there is no linear relationship between technical losses in percentage vis-a-vis energy transmitted. During the week (13.04.2020 to 19.04.2020) Average Loss reported is 3.34% against the average drawl of power 16446.93 (MW) whereas during the week (24.08.20 to 30.08.2020) Average Loss reported is 2.95% against the average drawl power 29704.78 (MW).

To meet the load demand and strengthening of existing system, transmission elements i.e. power transformers and transmission lines keep on adding/augmenting in the system which is a continuous exercise vis-à-vis planned infrastructure envisaged by the dedicated wing of the department. The additional transmission elements also reduce the overloading which in turn affects the transmission losses. The details of previous years of capacity addition in MVA along with that of transmission lines and transmission losses are elaborated as under: -

| Financial Year | No. of PTFs added/augmented & capacity adding in MVA |              | Transmission Lines added/augmented in Kms | Capex incurred (INR Crores) | Intra-State Transmission Losses (%) |
|----------------|------------------------------------------------------|--------------|-------------------------------------------|-----------------------------|-------------------------------------|
|                | Nos.                                                 | MVA addition |                                           |                             |                                     |
| 2014-15        | 72                                                   | 1528.5       | 203.47                                    | 384.2                       | 2.615                               |
| 2015-16        | 37                                                   | 935.0        | 393.06                                    | 349.53                      | 2.698                               |
| 2016-17        | 52                                                   | 1433.5       | 372.44                                    | 387.44                      | 2.311                               |
| 2017-18        | 59                                                   | 1795.5       | 243.06                                    | 527.51                      | 2.259                               |
| 2018-19        | 115                                                  | 3798.5       | 226.72                                    | 510.60                      | 2.055                               |
| 2019-20        | 59                                                   | 2651.0       | 284.95                                    | 843.44                      | 2.065                               |

Besides above, the correctness of transmission losses depends upon the accuracy of the metering equipment. Further to ensure the accuracy of metering data, calibration of special energy meters is being carried out by HVPNL regularly besides timely replacement of the defective SEMs and metering equipment (CT&PT) on priority. The energy data is punched manually where metering equipment become defective.

It is worthwhile to apprise the Commission that project named "SAMAST" (Scheduling, Accounting, Metering and Settlement of Transactions in Electricity) has been initiated with the funding from PSDF. The tender documentation of the said project is under finalization and very soon project shall be rolled out. Provision of feature/software module to capture the intrastate transmission losses without human intervention is being explored in "SAMAST".

**The Commission directs the licensee to provide status of SAMAST Project along with detailed time lines for rolling out it within three months.**

**In view of foregoing discussions, the Commission is of the view that still there is scope for further reduction in existing loss and observes that target fixed for transmission losses in the MYT Regulations 2019 are quite realistic and achievable. The licensee must put in sincere and consistent efforts to reign in its transmission losses with in prescribed norms.**

#### **K. TRANSMISSION SYSTEM AVAILABILITY**

HVPNL has submitted that the Transmission System Availability serve as guidelines to operate the State Transmission System for providing an efficient, reliable, coordinated and economical system for transmission of electricity supply and it expand the reliability index at the transmission and substation equipment sub component level. These standards set the levels of operational security and quality of supply. The Normative annual transmission system availability Factor as per the regulations is given here under:

**Normative annual transmission system availability Factor (NATAF) (%)**

| Norms            | 1 <sup>st</sup> MYT Period |                |                |                |                |                | 2 <sup>nd</sup> MYT control Period |
|------------------|----------------------------|----------------|----------------|----------------|----------------|----------------|------------------------------------|
|                  | 2014-15<br>(%)             | 2015-16<br>(%) | 2016-17<br>(%) | 2017-18<br>(%) | 2018-19<br>(%) | 2019-20<br>(%) | 2020-21<br>(%)                     |
| <b>AC System</b> | 98.80                      | 99.00          | 99.20          | 99.20          | 99.20          | 99.30          | 99.20                              |

The above target availability is subject to an incentive and penalty mechanism once the conditions specified in regulation 12 are satisfied.

HVPNL was adopted the methodology for calculating the Transmission System Availability (Certified Deemed Availability) on the basis of CERC regulations dated 19.01.2009 with effect from October 2009 up to F.Y. 2019-20.

Now, HERC vide Regulation No. HERC/46/2019 dated 31.10.2019 has directed that w.e.f. April, 2020, the procedure for calculation of Transmission System Availability factor shall be governed as per CERC regulation, issued from time to time and accordingly, HVPNL is calculating the transmission system availability on the basis of CERC Regulations, 2019 from April, 2020 onwards.

| Availability in %                                            |         |
|--------------------------------------------------------------|---------|
| Cumulative for the year 2006-07                              | 99.62   |
| Cumulative for the year 2007-08                              | 99.57   |
| Cumulative for the year 2008-09                              | 99.57   |
| Cumulative for the year 2009-10 (April to September)         | 99.56   |
| Cumulative for the year 2009-10 (October 2009 to March 2010) | 99.3935 |
| Cumulative for the year 2010-11                              | 99.5948 |
| Cumulative for the year 2011-12                              | 99.5569 |
| Cumulative for the year 2012-13                              | 99.6724 |
| Cumulative for the year 2013-14                              | 99.690  |
| Cumulative for the year 2014-15                              | 99.1309 |
| Cumulative for the year 2015-16                              | 98.2985 |
| Cumulative for the year 2016-17                              | 99.0425 |
| Cumulative for the year 2017-18                              | 98.9518 |
| Cumulative for the year 2018-19                              | 99.5401 |
| Cumulative for the year 2019-20                              | 99.8531 |
| Cumulative for the year 2020-21 (up to September, 2020)      | 99.2160 |

The Commission observes that the transmission system availability for the year for FY 2018-19, is 99.54% against the target of 99.20% and in FY 2019-20 the availability has been 99.85% against the target of 99.30%. The licensee has been able to achieve transmission system availability of 99.21% in the FY 2020-21 (ending Oct. 2019). However, it would like to emphasize the need to keep focused attention for the preventive maintenance of the transmission lines and the power transformers to avoid outages/ break downs in the transmission system to achieve the target of 99.20%.

In compliance of commission's directives "The Commission reiterate that the Licensee ought to maintain target availability as per the norms specified for the purpose. All out efforts be made to achieve the target availability by closely monitoring the transmission system at division level and carry out the preventive maintenance of the transmission elements, the lines and the substations in time as per schedule." HVPNL vide its letter dated 28.09.2020 has submitted that directives of

Commission have been circulated to SLDC wing and field office of HVPNL for meticulous compliance. Subsequently also submitted that measures being taken by the field offices to closely monitor the maintenance of transmission system and taken various measures to avoid/ reduce tripping/ breakdowns to achieve the target of transmission system availability. Further, transmission System Availability is being closely monitored by Whole Time Directors and Board of Directors in their Regular meetings. Moreover, BODs have directed to penalize the concerned officers and officials in case 1012 or more trappings on single transmission line and 4 or tripping on a Power Transformer in single year.

**The Commission reiterate that the licensee ought to maintain the target availability as per norms specified in MYT Regulations, 2019 and to achieve the target availability by closely monitoring the transmission system at division level. Live-line maintenance techniques are available and licensee must ensure that these are adopted to improve system availability.**

#### **L. FAILURES OF POWER TRANSFORMERS**

HVPNL has submitted that there are 1212 Power Transformers installed in its system as on 31.09.2020, during the period 1.04.20 to 31.09.20, nine power transformers have failed as under:

| <b>Year</b>              | <b>2018-19</b> | <b>2019-20</b> | <b>2020-21 (end Nov. 2020)</b> |
|--------------------------|----------------|----------------|--------------------------------|
| No. of Power T/F damaged | 27             | 14             | 09                             |

The voltage wise detail of Transformer damage during FY 2020-21 (end Sept. 2020) is as under:

| <b>Sr. No.</b> | <b>Voltage rating</b> | <b>Total no. of transformer</b> | <b>Damaged transformer</b> |
|----------------|-----------------------|---------------------------------|----------------------------|
| 1              | 400 kV                | 15                              | 0                          |
| 2              | 220 kV                | 219                             | 0                          |
| 3              | 132 kV                | 596                             | 8                          |
| 4              | 66 kV                 | 381                             | 1                          |
|                | <b>Total</b>          | <b>1211</b>                     | <b>9</b>                   |
|                | <b>% of damage</b>    |                                 | 0.74 %                     |

The Commission observe that vide its Order dated 29th May, 2014 for ARR and tariff proposal of HVPNL transmission business, the licensee was advised to strictly enforce the preventive maintenance schedules, healthiness of the protection system, prevent over loading of the transformers and implement the findings of the enquiry reports of the Maintenance and Protection wing of the HVPNL to aim for zero damage rate for Power Transformers. The following table provides the status of damage of power transformers during the last 5 years.

| Sr. No. | Period                     | Total no. of Power Transformers | No. of Transformers damaged |       |
|---------|----------------------------|---------------------------------|-----------------------------|-------|
|         |                            |                                 | Nos.                        | % age |
| 1.      | 2016-17                    | 1066                            | 18                          | 1.69  |
| 2.      | 2017-18                    | 1082                            | 14                          | 1.29  |
| 3.      | 2018-19                    | 1136                            | 27                          | 2.40  |
| 4.      | 2019-20                    | 1177                            | 14                          | 1.18  |
| 5.      | 2020-21 (ending Nov, 2020) | 1211                            | 9                           | 0.74  |

The Commission observes that the damage rate of Power transformers continued to be high which should not be more than one percent of its population as being observed in the best performing utilities. The damage rate has been 2.40% in FY 2018-19, 1.18% in FY 2019-20 and 0.74% during FY 2020-21 (end Nov, 2019) as reported by the licensee. The damage rate in FY 2018-19 has been very high which is a matter of concern. The Licensee was directed to submit a report with regard to investigation into the causes of damage of power transformers and action taken thereof to avoid recurrence of such damage in future.

HVPN has provided the details in respect of circle-wise, transformer damage as under: -

**Circle-wise Transformer damage**

| Name of circle | Voltage   | FY 2018-19 |            |      | FY 2019-20 |            |      | FY 2020-21 |            |      |
|----------------|-----------|------------|------------|------|------------|------------|------|------------|------------|------|
|                |           | No. of T/F | T/F damage | %    | No. of T/F | T/F damage | %    | No. of T/F | T/F damage | %    |
| Panchkula      | 220KV     | 23         | 1          | 4.35 | 22         | 0          | 0.00 | 23         | 0          | 0.00 |
|                | 132 KV    | 3          | 0          | 0.00 | 3          | 0          | 0.00 | 3          | 0          | 0.00 |
|                | 66 KV     | 154        | 2          | 1.30 | 156        | 1          | 0.64 | 160        | 1          | 0.63 |
|                | Sub Total | 180        | 3          | 1.67 | 181        | 1          | 0.55 | 186        | 1          | 0.53 |
| Karnal         | 220 KV    | 31         | 0          | 0.00 | 34         | 0          | 0.00 | 37         |            | 0.00 |
|                | 132 KV    | 162        | 7          | 4.32 | 165        | 1          | 0.61 | 165        | 2          | 1.21 |
|                | 66KV      | 1          | 0          | 0.00 | 2          | 0          | 0.00 | 2          | 0          | 0.00 |
|                | Sub Total | 194        | 7          | 3.61 | 201        | 1          | 0.50 | 204        | 2          | 0.98 |
| Rohtak         | 220 KV    | 24         | 2          | 8.33 | 31         | 0          | 0.00 | 33         |            | 0.00 |
|                | 132 KV    | 138        | 6          | 4.35 | 148        | 5          | 3.38 | 154        | 4          | 2.60 |
|                | Sub Total | 162        | 8          | 4.94 | 179        | 5          | 2.79 | 187        | 4          | 2.14 |
| Faridabad      | 400 KV    | 2          | 0          | 0.00 | 3          | 0          | 0.00 | 3          | 0          | 0.00 |
|                | 220 KV    | 18         | 1          | 5.56 | 20         | 0          | 0.00 | 21         | 0          | 0.00 |
|                | 66 KV     | 107        | 2          | 5.56 | 112        | 1          | 0.89 | 116        | 0          | 0.00 |

|         |           |     |   |      |     |   |      |     |   |      |
|---------|-----------|-----|---|------|-----|---|------|-----|---|------|
|         |           |     |   |      |     |   |      |     |   |      |
|         | Sub Total | 127 | 3 | 2.36 | 135 | 1 | 0.74 | 140 | 0 | 0.00 |
| Gurgaon | 400 KV    | 7   | 0 | 0.00 | 7   |   | 0.00 | 7   | 0 | 0.00 |
|         | 220 KV    | 45  | 2 | 4.44 | 51  | 0 | 0.00 | 56  | 0 | 0.00 |
|         | 132 KV    | 54  | 0 | 0.00 | 55  | 1 | 1.82 | 55  | 1 | 1.82 |
|         | 66 KV     | 100 | 1 | 1.00 | 99  | 1 | 1.01 | 103 | 0 | 0.00 |
|         | Sub Total | 206 | 3 | 1.45 | 212 | 2 | 0.94 | 221 | 1 | 0.45 |
| Hisar   | 400 KV    | 5   | 0 | 0.00 | 5   | 0 | 0.00 | 5   | 0 | 0.00 |
|         | 220 KV    | 46  | 0 | 0.00 | 47  | 0 | 0.00 | 49  | 0 | 0.00 |
|         | 132 KV    | 212 | 3 | 1.42 | 217 | 4 | 1.84 | 219 | 1 | 0.46 |
|         | Sub Total | 263 | 3 | 1.14 | 269 | 4 | 1.49 | 273 | 1 | 0.37 |

It is observed that there has been some improvement in the reduction of damage rate of power transformers in the FY 2019-20. However, in some of the circles the damage rates is still very high. Further, in FY 2020-21, nine transformers are reported as damaged till Nov, 2020 the licensee was asked to intimate the cause of damage, action taken and the preventive action to be taken to avoid recurrence of such faults.

In compliance of Commission's directive to provide the circle wise action plan and the action taken to replace/rehabilitate sick power transformers working/operation in the field, with the detail of the transformers declared sick during FY 2018-19 and FY 2019-20, HVPNL has submitted that the details of identified sick/damaged Power Transformers require repair/rehabilitation are as under:

| Latest Status of Power Transformer Damaged/Sick declared during FY 2018-19 & FY 2019-20 |                         |                                                                |                                              |                       |                       |                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------|----------------------------------------------|-----------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sr. No.                                                                                 | Name of S/Stn.          | Rating of the power transformer damaged/declared sick (in MVA) | Date of damage of power transformers damaged | Year of manufacturing | Date of commissioning | Latest Status                                                                                                                                                                                                                                                                                           |
| 1                                                                                       | 220 KV Stn Pinjore      | 40 MVA , 132/66 KV                                             |                                              | 1967                  | 08.03.1978            | The transformer shall be surveyed off in due course                                                                                                                                                                                                                                                     |
| 2                                                                                       | 66KV S/STN. IOC A/Cantt | 12.5/16, 66/11kV, T-3                                          |                                              | 1989                  | 23.03.1990            | It is intimated that the 12.5/16 MVA T/F has been augmented with 25/31.5MVA, 66/11kV T/F. The load is being managed smoothly after the augmentation.<br>It is further added that the augmentation of 2nd 12.5/16MVA,66/11kV with 25/31.5MVA,66/11kV T/F is approved to be carried out during FY-2023-24 |

HERC ORDER ON MYT PETITION FOR DETERMINATION OF ARR FOR TRANSMISSION BUSINESS AND SLDC FOR THE FY 2021-22, TRANSMISSION TARIFF AND SLDC CHARGES FOR THE FY 2021-22, ANNUAL PERFORMANCE REVIEW FOR THE FY 2020-21 & TRUE-UP FOR THE FY 2019-20

|    |                                  |                                        |            |      |            |                                                                                                                                                                                         |
|----|----------------------------------|----------------------------------------|------------|------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3  | 66KV<br>S/STN. Saha              | 12.5/16,<br>66/11kV, T-<br>1           |            | 1994 | 18.02.1994 | The T/F has been replaced with 25/31.5MVA, 66/11kV T/F on dt-14.09.2020. The action for deciding the course of action for rehabilitation of this T/F will be got decided in due course. |
| 4  | 66 kV S/Stn.<br>Yamuna<br>Nagar  | 10/12.5,<br>66/11KkV                   |            | 1984 | 25.10.2013 | The T/F has been replaced with 25/31.5MVA, 66/11kV T/F on dt-14.09.2020. The action for deciding the course of action for rehabilitation of this T/F will be got decided in due course. |
| 5  | 66 kV S/Stn.<br>Chhachhrau<br>li | 16.67 MVA,<br>132/66kV                 |            | 1977 | 20.07.2010 | The Transformer has been Surveyed off.                                                                                                                                                  |
| 6  | 220 KV<br>S/Stn.,<br>Sonipat     | 16/20 MVA,<br>132/11KV,<br>T/F T-6     | 16.11.2018 | 2015 | 29.11.2017 | T/F has been got repaired.                                                                                                                                                              |
| 7  | 132 KV<br>S/Stn.<br>Murthal      | 10/16 MVA,<br>132/11 KV,<br>T/F T-1    | 27.10.2018 | 2004 | 29.09.2004 | T/F has been got repaired.                                                                                                                                                              |
| 8  | 220 KV<br>S/Stn.,<br>Samalkha    | 16/20 MVA,<br>132/11 KV,<br>T/F T-1    | 09.09.2018 | 2010 | 08.02.2011 | The transformer shall be got repaired in due course                                                                                                                                     |
| 9  | 220 KV<br>S/Stn.,<br>Sonipat     | 10/16 MVA,<br>132/11 KV,<br>T/F T-1    | 07.07.2018 | 1998 | 20.09.1998 | The transformer shall be got repaired in due course                                                                                                                                     |
| 10 | 132 KV<br>S/Stn.,<br>Chandoli    | 10/16<br>MVA,<br>132/11 KV,<br>T/F T-3 | 03.06.2018 | 2004 | 16.07.2009 | The Transformer has been Surveyed off.                                                                                                                                                  |
| 11 | 132 KV<br>S/Stn.,<br>Panipat     | 10/16 MVA,<br>132/11 KV,<br>T/F T-4    | 22.01.2020 | 1990 | 30.05.2007 | The Transformer has been Surveyed off.                                                                                                                                                  |
| 12 | 132 KV<br>S/Stn., Sec-<br>29     | 16/20 MVA,<br>132/11 KV,<br>T/F T-1    | 06.01.2020 | 2009 | 25.12.2009 | The transformer shall be got repaired in due course                                                                                                                                     |
| 13 | 132 KV<br>S/Stn.,<br>Chhajpur    | 10/16 MVA,<br>132/11 KV,<br>T/F T-3    | 26.07.2019 | 1982 | 30.09.2005 | The Transformer has been Surveyed off.                                                                                                                                                  |
| 14 | 132 KV<br>S/Stn.,<br>Panipat     | 10/16 MVA,<br>132/11 KV,<br>T/F T-3    | 08.06.2019 | 2004 | 03.12.2004 | The transformer has been got repaired                                                                                                                                                   |
| 15 | 132 KV<br>Siwan                  | 10/16 MVA<br>132/11 KV                 | 01.4.2018  | 1997 | 10.07.1997 | The transformer shall be got repaired in due course                                                                                                                                     |
| 16 | 132 KV<br>Jundla                 | 10/16 MVA<br>132/11 KV                 | 04.5.2018  | 1988 | 25.06.1990 | The Transformer shall be Surveyed off in due course                                                                                                                                     |
| 17 | 132 KV<br>Dhand                  | 10/16 MVA<br>132/11 KV                 | 16.6.2018  | 2006 | 14.07.2009 | The Transformer has been Surveyed off.                                                                                                                                                  |
| 18 | 132 KV<br>Thana                  | 10/16 MVA,<br>132/11 KV<br>T/F         | 06.8.2018  | 1981 | 09.07.1982 | The Transformer has been Surveyed off.                                                                                                                                                  |
| 19 | 132 KV<br>Nilokheri              | 20/25 MVA,<br>132/33 KV                | 13.8.2018  | 1998 | 28.08.2017 | The transformer shall be got repaired in due course                                                                                                                                     |
| 20 | 132 KV<br>Nagla<br>Megha         | 10/16 MVA,<br>132/11 KV                | 05.9.2018  | 2004 | 10.04.2012 | The Transformer shall be Surveyed off in due course                                                                                                                                     |

|    |                                     |                                        |                                                                             |      |            |                                                      |
|----|-------------------------------------|----------------------------------------|-----------------------------------------------------------------------------|------|------------|------------------------------------------------------|
| 21 | 220 KV<br>Nissing                   | 10/16 MVA,<br>132/11 KV                | 01.11.2018                                                                  | 1996 | 30.04.1999 | The Transformer shall be got repaired in due course  |
| 22 | 132 kV<br>Assandh                   | 20/25 MVA,<br>132/33 KV                | 13.12.2019                                                                  | 2004 | 14.08.2005 | The Transformer shall be got repaired in due course  |
| 23 | 220KV<br>S/Stn. Sec-56              | 220/66KV,<br>160MVA,<br>IMP            | 09.04.2018                                                                  | 2017 | 16.02.2018 | The Transformer has been got repaired                |
| 24 | 66KV S/Stn.<br>Sec-47,<br>Gurugram  | 25/31.5MV<br>A, 66/11kV,<br>TA         | 25.04.2018                                                                  | 2017 | 26.02.2018 | The Transformer has been got repaired                |
| 25 | 220KV<br>S/Stn. Sec-72,<br>Gurugram | 100MVA,<br>220/33kV,<br>BBL            | 23.01.2019                                                                  | 2010 | 10.05.2011 | The transformer shall be got repaired in due course. |
| 26 | 220kV S/stn<br>sec-56<br>Gurugram   | 25/31.5MV<br>A, 66/11kV<br>T-1 TF, ECE | 03.10.2019                                                                  | 2009 | 16.07.2009 | The transformer shall be got repaired in due course. |
| 27 | 132KV<br>S/Stn.<br>Buroli           | 132/11KV,1<br>6/20MVA<br>T/F           | 03.08.2019<br>(Note: This<br>Transformer<br>is under<br>warranty<br>period) | 2017 | 11.10.2017 | The Transformer has been got repaired                |
| 28 | 132kV<br>Uklana                     | 10/16 MVA,<br>132/11 KV                | 25.09.2018                                                                  | 1996 | 01.01.2007 | The Transformer has been Surveyed off.               |
| 29 | 132 KV<br>Garhi                     | 16/20 MVA,<br>132/33 KV                | 06.09.2018                                                                  | 1993 | 30.07.2018 | The Transformer has been Surveyed off.               |
| 30 | 132KV<br>Jhojhu<br>Kalan            | 132/11KV,<br>10/16MVA                  | 20.4.2018                                                                   | 1986 | 29.10.1986 | The Transformer has been Surveyed off.               |
| 31 | 132 KV<br>S/Stn.<br>Ramnagria       | 132/11 KV,<br>10/16 MVA                | 21.9.2019                                                                   |      | 29.12.2006 | Transformer has been got repaired.                   |
| 32 | 132 KV<br>Dhamtan                   | 10/16 MVA,<br>132/11 KV                | 21.08.2019                                                                  | 1981 | 16.12.2009 | The Transformer has been Surveyed off.               |
| 33 | 220KV<br>Isharwal                   | 20/25MVA,<br>132/33KV                  | 23.08.2019                                                                  | 2007 | 27.05.2009 | The transformer shall be got repaired in due course. |
| 34 | 132KV<br>S/Stn.<br>Tohana           | 132/33KV,1<br>6/20 MVA                 | 14.06.2019                                                                  | 1981 | 19.06.2011 | The Transformer has been Surveyed off.               |

HVPN has submitted that 15 power transformers (PTFs) requiring repair/ rehabilitation and the case for repair of PTFs from the Original Equipment Manufacturers (OEMs) has already been put up for the approval of the competent authority. The tentative time frame for issue of Letter of Award is as under: -

- i. Time frame for getting the approval of the competent authority for repairing of damaged/sick PTFs from OEMs - 15 to 20 days.
- ii. Time frame to invite best quotes for repair of power transformers from respective Original Equipment Manufacturers - 45 days with validity of 120 days

- iii. Evaluation/reasonability of rates w.r.t. previous awarded rates and placing the proposal in Utility Level High Power Purchase Committee (ULHPPC) for consideration, negotiations and decision before issue of Letter of Award -120 days.
- iv. After the issuance of Letter of Award (LOA), following is the proposed delivery schedule as per terms and conditions of the tender document: -

Each PTF duly repaired, inspected and tested along with all accessories, fittings oil etc. shall be delivered as per the following delivery schedule from the date of issue of allotment letter for repair of individual PTF: -

- a. Repaired PTF shall be delivered within 2 months from the issue of detailed work order for particular PTF.
- b. The date of receipt of repaired PTF at HVPNL site (inclusive of all accessories etc.) against each repair job/work order from the firm's works shall be deemed to be the date of delivery.
- c. Besides the delivery schedule specified above, the following time schedule shall be maintained by the repairers-

| Sr.no. | Activity                                                                                    | Time schedule                                                                                |
|--------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 1.     | Joint preliminary inspection at HVPNL site and lifting of damaged transformer HVPNL's site. | Within 21 (Twenty-One) days from the date of issue of allotment letter.                      |
| 2.     | Joint inspection call at bidders works.                                                     | Within 10 (Ten) days after arrival of transformer at bidders works.                          |
| 3.     | Submission of JVR repot/estimate for repair complete in all respect.                        | Within 10 (Ten) days after joint internal inspection and finalization of quantity of repair. |

Any delay in the above time schedule shall be accounted for, against delivery schedule of that particular repaired PTF.

- d. At any time only 2 no. PTFs will be allocated/ handed over to the bidder (OEM) for the repair of said PTFs. However, more than two PTFs may also be allocated/handed over for repair to the OEM, depending upon the requirement of purchaser with the mutual consent.

Tentative time frame required for getting the PTFs repaired from OEMs will be 09 to 12 months

from the date of approval of competent authority of the Nigam.

**The Commission directs the STU to provide the time line to replace/rehabilitate above balanced identified sick transformers after obtaining approval of the competent authority of the STU and the action plan taken to replace/rehabilitate sick transformers working in the field, circle wise with detail of transformers during FY 2020-21 with in three months.**

Further, in compliance of the Commission's directive to implement the Protection Audit Norms for its substations and lines to ensure the healthiness of the protection system and submit the action taken report in this regard, HVPNL has submitted that M&P inspection is a routine exercise executed by M&P wing of HVPNL with well-defined interval of time and necessary action are being taken by field offices of HVPNL promptly to rectify such defects and to ensure smooth running of transmission system for maintaining the stringent target prescribed by Commission for the transmission system availability.

HVPNL has got developed the SARAL M&P application wherein the periodical M&P testing schedule, monitoring of the schedule, monitoring of compliances to the M&P observations of the power transformers in the substations are being carried out. besides this HVPNL is developing the SARAL App for the M&P testing schedule of all the equipment of the substations so that the compliance can be monitored at every level. The M&P observations are also being reviewed at the highest level on monthly basis. Further, HVPNL is under the process of awarding the work for the maintenance schedule of transmission lines.

**The licensee is directed that the status of circle-wise /substation-wise observations pending, added during the year, attended and pending in FY 2019-20 and FY 2020-21 be provided.**

**M. Identification of defective LAs/GO Switches/defective earthing at 1st H-pole of 11 KV feeders emanating from HVPNL substations:**

In compliance of the Commission's observations that both DISCOMs and the transmission licensee needs to work in tandem and the close coordination. Further directs the licensee to pursue vigorously with UHBVNL and DHBVNL to ensure that these defects are removed within three months of the order and a certificate be recorded by the offices concerned that the defects identified have been rectified. Further the work of shifting of 11 KV feeders from the overloaded power transformers in HVPNL substation to the 33 KV substations be completed in a time bound manner under the close monitoring of a coordination committee. The progress of above works be

intimated to the Commission after three months. Action plan to replace 84 CTs with tan delta more than 10% and LAs with more than permissible leakage current be intimated to avoid outage of system; HVPNL has submitted as under:

- a) In this context it is submitted that the status for replacement of defective LAs, GO switches, defective earthing at 1<sup>st</sup> H-pole (UHBVN & DHBVN) and the Status of shifting of 11 kV feeders from 132/11 kV to 33/11 kV is as under:

**Status for replacement of defective LAs, GO switches, defective earthing as on 01.05.2020 (TS Zone Hisar)**

| Sr. No       | Name of Circle | Total nos. of 11KV feeder | Installed           |              |               | Balance    |            |            |
|--------------|----------------|---------------------------|---------------------|--------------|---------------|------------|------------|------------|
|              |                |                           | GO switch installed | LA installed | Earthing Done | GO switch  | LA         | Earthing   |
| 1            | Hisar          | 212                       | 191                 | 134          | 191           | 21         | 78         | 21         |
| 2            | Sirsa          | 210                       | 143                 | 102          | 133           | 67         | 108        | 77         |
| 3            | Jind           | 154                       | 142                 | 116          | 112           | 12         | 38         | 42         |
| 4            | Bhiwani        | 170                       | 128                 | 79           | 139           | 42         | 91         | 31         |
| 5            | Palwal         | 289                       | 188                 | 197          | 238           | 101        | 92         | 51         |
| 6            | Faridabad      | 521                       | 402                 | 379          | 449           | 119        | 142        | 72         |
| 7            | Gurugram       | 506                       | 447                 | 414          | 473           | 59         | 92         | 33         |
| 8            | Manesar        | 281                       | 276                 | 234          | 281           | 5          | 47         | 0          |
| 9            | Daultabad      | 70                        | 61                  | 66           | 61            | 9          | 4          | 9          |
| 10           | Rewari         | 202                       | 129                 | 158          | 104           | 73         | 44         | 98         |
| <b>Total</b> |                | <b>2615</b>               | <b>2107</b>         | <b>1879</b>  | <b>2181</b>   | <b>508</b> | <b>736</b> | <b>434</b> |

**Status for replacement of defective LAs, GO switches, defective earthing as on 01.05.2020 (TS Zone Panchkula)**

| Sr. No       | Name of Circle | Total nos. of 11KV feeder | Installed           |              |               | Balance    |            |            |
|--------------|----------------|---------------------------|---------------------|--------------|---------------|------------|------------|------------|
|              |                |                           | GO switch installed | LA installed | Earthing Done | GO switch  | LA         | Earthing   |
| 1            | Madanpur       | 276                       | 276                 | 264          | 276           | 31         | 46         | 9          |
| 2            | Ambala         | 365                       | 365                 | 365          | 365           | 38         | 58         | 23         |
| 3            | Yamuna Nagar   | 380                       | 363                 | 359          | 376           | 49         | 64         | 59         |
| 4            | Kurukshetra    | 97                        | 76                  | 64           | 95            | 21         | 33         | 2          |
| 5            | Kaithal        | 209                       | 110                 | 8            | 169           | 99         | 201        | 40         |
| 6            | Karnal         | 226                       | 207                 | 148          | 214           | 19         | 78         | 12         |
| 7            | Panipat        | 140                       | 131                 | 10           | 104           | 9          | 130        | 36         |
| 8            | Sonipat        | 182                       | 156                 | 66           | 127           | 26         | 116        | 42         |
| 9            | Rohtak         | 91                        | 90                  | 91           | 20            | 1          | 0          | 5          |
| 10           | Jhajjar        | 90                        | 69                  | 60           | 68            | 21         | 30         | 6          |
| <b>Total</b> |                | <b>2056</b>               | <b>1843</b>         | <b>1435</b>  | <b>1814</b>   | <b>314</b> | <b>756</b> | <b>234</b> |

**Status of shifting of 11 kV feeders from 132/11 kV to 33/11 kV as on as on 15.05.2020**

| Sr. No                   | TS Circle | Total No. of HVPNL Grid S/Stns. from which 11 kV feeder are to be shifted | Total No. of 11 kV feeders to be shifted | 11 kV feeders shifted | Balance |
|--------------------------|-----------|---------------------------------------------------------------------------|------------------------------------------|-----------------------|---------|
| <b>TS ZONE PANCHKULA</b> |           |                                                                           |                                          |                       |         |
| 1.                       | Panchkula | NIL                                                                       | NIL                                      | NIL                   | NIL     |
| 2.                       | Karnal    | 24                                                                        | 79                                       | 22                    | 57      |
| 3.                       | Rohtak    | 19                                                                        | 43                                       | 12                    | 31      |

| TS ZONE HISAR |           |     |     |                                           |     |
|---------------|-----------|-----|-----|-------------------------------------------|-----|
| 4.            | Hisar     | 39  | 118 | 19<br>3 Nos. feeders<br>shifted partially | 99  |
| 5.            | Gurugram  | NIL | NIL | NIL                                       | NIL |
| 6.            | Faridabad | NIL | NIL | NIL                                       | NIL |
| Total         |           | 82  | 240 | 53<br>3 Nos. feeders<br>shifted partially | 187 |

Further, the matter is regularly being taken up with the DISCOMs for replacement of defective LAs, GO switches, defective earthing at 1st H-pole (UHBN & DHBN) and shifting of 11 kV feeders from 132/11 kV to 33/11 kV and the same is being monitored by the WTDs of HVPNL on regular basis.

It is submitted that the procurement of 66/132/220 CTs are being carried out by HVPNL incorporating the requirement of 84 no. CTs with tan delta more than 10%. The material is being / shall be received in the dedicated store within 1-2 months' time. Accordingly, the same shall be replaced on priority basis. Further, the lightning Arresters are regularly being purchased by the HVPNL which are being replaced as per the requirement of the field offices from time to time

The Commission observes that still there are balance of 822 GO Switches, 1492 LAs and 668 Earthing to be replaced/installed. Only 53 Nos. 11 KV feeders out of 240 have been shifted on 33 KV substation from overloaded 132 KV substation. Further, 84 no. CTs with tan delta more than 10% are yet to be replaced.

**The Commission directs the licensee to pursue with DISCOMs to ensure the defects are removed within two months to minimise outage of system and give more reliable supply. The progress of the above work be intimated to the Commission after three months.**

#### N. Fatal and Non-Fatal Accidents

HVPNL has supplied data for fatal and Non-Fatal accidents to human beings in respect of HVPNL for the year FY 2018-19, FY 2019-20 and FY 2020-21 (up to Sept. 2020) as under:

##### Fatal and Non-Fatal Accidents

| Category             | 2018-19 | 2019-20 | 2020-21 (up to Sept. 2020) |
|----------------------|---------|---------|----------------------------|
| <b>(A) Fatal</b>     |         |         |                            |
| Human beings         | 2       | 2       | 0                          |
| Non-human beings     | 0       | 0       | 0                          |
| <b>(B) Non-Fatal</b> |         |         |                            |
| Human beings         | 19      | 3       | 1                          |
| Non-human beings     | 0       | 0       | 0                          |

The table below provides the data in respect of Fatal / Non-Fatal Accidents occurred in HVPNL during the last 6 years.

| Fatal/Non-Fatal Accidents |                           |              |           |       |
|---------------------------|---------------------------|--------------|-----------|-------|
| Sr. No.                   | Period                    | Human Beings |           |       |
|                           |                           | Fatal        | Non-fatal | Total |
| 1                         | 2013-14                   | 3            | 4         | 7     |
| 2                         | 2014-15                   | -            | 4         | 4     |
| 3                         | 2015-16                   | 1            | 10        | 11    |
| 4                         | 2016-17                   | 3            | 3         | 6     |
| 5                         | 2017-18                   | 2            | 7         | 9     |
| 6                         | 2018-19                   | 2            | 19        | 21    |
| 7.                        | 2019-20                   | 2            | 3         | 5     |
| 8.                        | 2020-21 (upto Sept. 2020) | 0            | 1         | 1     |

The Commission observes that during FY 2019-20, 5 fatal/ nonfatal accidents has occurred on the transmission system of HVPNL. The number of accidents in the year has been reduced in comparison to previous years, but still the licensee needs to take the preventive action to ensure that such accidents do not occur in future.

HVPNL has submitted that the Nigam has framed safety rules. Literature on Safety Regulations / Safety Measures has been prepared and circulated amongst the officers / staff posted in the field to increase the level of awareness. Safety Manual has been issued in Hindi as well. Proper (T&P) have been provided to the field technical staff. Regular Training is being imparted to implement the safety standards from time to time. Workshops on safety are being organized in the field to increase awareness about Safety Regulation & Safety Measures to be adhered while working on electrical equipment and lines.

The Commission further observes that in FY2019-20 till Nov, 2020, no fatal accident to human being and one nonfatal accident has taken place on the transmission system. The accident rate of human beings is alarmingly high in FY2018-19, however reducing trends have been observed in FY2019-20 and FY 2020-21 upto September 2020. The commission observes that if the licensee takes the above preventive action in true spirit and sincerely, the fatal accident would be avoided in future.

#### **O. PLANS FOR IMPROVING THE SYSTEM POWER FACTOR**

As per requirement of the Haryana Grid code for the transmission licensee, the reactive power planning exercise would be carried out by STU in consultation with NRLDC/NRPC and DISCOMs, as per the Commission's directives and programme for installation of active compensation equipment by STU and distribution licensee. STU shall carry out planning studies for reactive

power compensation of State transmission system including reactive power compensation at the intra-state generating station's switchyard. The agency engaged in sub-transmission and distribution shall not depend upon the state transmission system for reactive support when connected. The agency shall estimate and provide the required reactive compensation in its transmission and distribution network to meet its full reactive power requirement, unless specifically agreed to with STU/transmission licensee.

*SLDC shall continuously monitor voltage at strategic substation & in coordination with NRLDC regulate voltage levels so that there is minimal reactive power from regional transmission system.*

*Reactive power compensation should ideally be provided locally, by generating reactive power as close to the reactive power consumption as possible. The beneficiaries are therefore expected to provide local VArS compensation/ generation such that they do not draw VArS from the grid, particularly under low-voltage condition.*

HVPNL has already installed 4975.934 MVAR capacitors (as on 31.03.2020) on 220kV, 132kV and 66kV network to improve the power factor in the HVPN System. During current year 2020-21 HT Capacitors of 35.233 MVAR Capacity have been added in the Transmission system up to September-2020. However, the system power factor is mainly driven by the power factor of the load and is affected primarily by the consumers of the Distribution and Retail Supply Licensees. The status of total capacitors installed as on 30.09.2020 in HVPNL System is as under: -

|                       | Name of Circle           | Total capacitors in MVAR installed as on 31.03.2020 | Total capacitors in MVAR installed as on 30.09.2020 |
|-----------------------|--------------------------|-----------------------------------------------------|-----------------------------------------------------|
| 1.                    | TS Zone HVPNL, Panchkula | 2492.207                                            | 2532.910                                            |
| 2.                    | TS Zone HVPNL, Hisar     | 2483.727                                            | 2478.257                                            |
| <b>Total of HVPNL</b> |                          | <b>4975.934</b>                                     | <b>5011.167</b>                                     |

The Commission vide its last order dated 29.05.2020 on ARR of Transmission licensee had directed the licensee to expedite the repair of defective capacitor banks in its substations and ensure the healthiness of the capacitor banks installed in the system and to provide the progress of repair/rehabilitation of the capacitor banks with name of substation. HVPNL vide its Memo No. Ch- 47/XEN/RAU/ F-166/Vol-IV dated 29-12-2020 has submitted that capacitor banks of 278 MVAR are defective and 31.8 MVAR of 11 KV 200 KVAR capacitor cell are available in the stock. Further status of Procurement of Capacitor Banks/ Cells is as under:

- a) Agenda for Procurement of **56 MVAR (200KVA x 284 no. Capacitor Cells)** against E-tender enquiry QDP-1251 (NIT No. 1134 dated 04.08.2020) will be

placed for consideration, negotiation and decision of ULHPPC in the coming meeting. The supply is likely to be received during March – April 2021 and will be replaced before peak summer.

- b) Purchase order for procurement of **342 MVAR (47 sets of 33kV Capacitor Banks)** (16x10.872 & 31x5.436 MVAR) along with allied equipment and supporting structure has been placed on ABB Power Products and System India Ltd. ("APPSIL") against PO No. HDP-2465/QDP-1179/Xen/Eq. (P) dated 30.12.2019. Despatch Instructions for 21 No Capacitor Banks has been issued and partial material has already been received in respective dedicated stores. The civil work, erection and commissioning is in progress.
- c) Requirement/Locations for procurement of 11 kV (APFC) Automatic Capacitor Banks of 176.472 MVAR (6.842 x 18 + 3.00 x 9 + 9.00 x 3 MVAR) are being finalized and the tender for the same is likely to be floated during December -2020 and tender will be finalized in March 2021 and supply of the material will be commenced in September- 2021 and onward.

The damage and replacement of the Capacitor Bank (Units) is regular feature. However, all efforts are being made to minimize the gap.

The Commission observes that HVPN has added 40.703 MVAR capacitor banks in its transmission system under TS Zone Panchkula in two quarter of FY 2020-21. However, no new capacitor bank has been added in Hisar Zone during FY2020-21.

**The Commission directs the licensee to expedite the repair of defective capacitor banks in its substations and ensure the healthiness of the capacitor banks installed in the system. HVPNL is directed to provide the progress of repair/rehabilitation of the capacitor banks with name of substation within three months of the order.**

#### **P. ENERGY ACCOUNTING**

HVPN has submitted that the information on energy received at interface points of HVPNL with CTU and energy supplied to distribution licensees at LV side of the transformers in the HVPNL Sub Stations is being accounted. Regarding metering of interface points with DISCOMs/Railways, HVPNL respectfully submits that there are 1241 interface points between HVPNL and Distribution licensees i.e. UHBVNL, DHBVNL & Railways and at all the locations Special Energy Meters (SEMs)

of 0.2s class accuracy has been installed. The Monthly Energy Account is prepared by HVPNL after considering the energy measured and recorded in the energy meters installed at the interface points of the DISCOMs at 11KV or 33 KV side of each Power Transformer feeding the distribution area. In addition, the energy fed directly from the Sub Stations of HVPNL at 66kV and above voltage to the consumers of DISCOMs & Railway as per the list given below is accounted for in the monthly energy accounts.

It is further added that HVPNL has decided to install SEMs at new interface points as under:

**a) Interface between HVPNL and DISCOMs: -**

Only one SEM be installed to serve as main meter on 11 KV & 33 KV feeders emanating from sub-station under the control of HVPNL. The check/standby SEM be installed by DISCOM. Further SEM has been installed at 11kV incomer panels with provisions of 0.2S accuracy class metering CT/PT instead of separate 11kV combined CT/PT unit.

**b) Interface points with HPGCL: -**

The standby meter will be installed on HV side of generator transformer and station auxiliary transformer by HPGCL. Main and check SEMs on all outgoing feeders be installed by HVPNL.

**List of interface locations of HVPNL feeding consumers through independent feeder as on  
30.09.2020:**

| Sr. No. | Name of Sub-Station                       | Name of the Feeder              |
|---------|-------------------------------------------|---------------------------------|
| 1       | 220 kV Substation BBMB Khera, Yamunanagar | 66 kV Railway Workshop Feeder   |
| 2       | 132 kV Substation, Panipat                | 132 kV NFL Feeder CKT-I         |
| 3       |                                           | 132 kV NFL Feeder CKT-II        |
| 4       | 132 kV Substation PTPS, Panipat           | 132 kV PTPS IOC Feeder          |
| 5       | 132 kV Substation MIE, Bahadurgarh        | 132 kV HNG Feeder               |
| 6       | 220 kV Substation Nuna Majra, Bahadurgarh | 132 kV DMRC CKT-I               |
| 7       |                                           | 132 kV DMRC CKT-II              |
| 8       | 132 kV Substation Badli, Bahadurgarh      | 132 kV GIS Badsa CKT-I          |
| 9       |                                           | 132 kV GIS Badsa CKT-II         |
| 10      | 132 kV Substation Munak, Karnal           | 132 kV IOCL Munak               |
| 11      | 66 kV Substation IOC Ambala Cantt         | 66 kV IOC Feeder                |
| 12      | 220 kV Substation Tepla, Ambala           | 66 kV MES Feeder                |
| 13      |                                           | 66 kV AIR FORCE Feeder          |
| 14      | 132 kV Substation, Bhiwani                | 132 kV GBTL Grasim Feeder       |
| 15      | 66 kV Substation Badraula, Faridabad      | 66 kV Star wire Chhainsa Feeder |
| 16      | 66 kV Substation Ford, Faridabad          | 66 kV Escort line Feeder        |
| 17      | 66 kV Substation Global Steel, Faridabad  | 66 kV Star wire India Feeder    |

HERC ORDER ON MYT PETITION FOR DETERMINATION OF ARR FOR TRANSMISSION BUSINESS AND SLDC FOR THE FY 2021-22, TRANSMISSION TARIFF AND SLDC CHARGES FOR THE FY 2021-22, ANNUAL PERFORMANCE REVIEW FOR THE FY 2020-21 & TRUE-UP FOR THE FY 2019-20

| Sr. No. | Name of Sub-Station                             | Name of the Feeder                             |
|---------|-------------------------------------------------|------------------------------------------------|
| 18      | 66 kV Substation Idgah, Faridabad               | 66 kV Good Year Feeder                         |
| 19      | 66 kV Substation Jharsetly, Faridabad           | 66 kV Laser Saving Blade Feeder                |
| 20      |                                                 | 66 kV JCB Feeder                               |
| 21      | 66 kV Substation NH-3, Faridabad                | 66 kV ESIC Medical college Feeder              |
| 22      | 66 kV Substation Oswal Steel, Faridabad         | 66 kV BSL casting feeder                       |
| 23      |                                                 | 66 kV PGI feeder                               |
| 24      | 220 kV Substation Sec-46, Faridabad             | 66 kV DMRC CKT I feeder                        |
| 25      |                                                 | 66 kV DMRC CKT II feeder                       |
| 26      | 220 kV Substation BBMB, Hisar                   | 220 kV Jindal Consumer Feeder                  |
| 27      | 66 kV Substation Maruti, Gurugram               | 66kV Maruti Udyog Limited (MUL) Ckt. I         |
| 28      |                                                 | 66kV Maruti Udyog Limited (MUL) Ckt. II        |
| 29      | 66 kV Substation Sec-34, Gurugram               | 66 kV Sunbeam Feeder                           |
| 30      |                                                 | 66 kV Rico feeder                              |
| 31      | 66 kV Substation Sec-56, Gurugram               | 66 kV Rapid Metro Ckt. I feeder                |
| 32      | 66 kV Substation Sec- 52A, Gurugram             | 66kV DMRC Ckt I feeder                         |
| 33      |                                                 | 66 kV DMRC Ckt II feeder                       |
| 34      | 220 kV Substation Sec-72, Gurugram              | 66 kV Candoor Sec 72 Feeder                    |
| 35      | 220 kV Substation Sec -20, Gurugram             | 66 kV Ambience mall feeder                     |
| 36      |                                                 | 66 kV Infospace limited Feeder                 |
| 37      |                                                 | 66 kV DLF Cyber Park Feeder                    |
| 38      | 66 kV Substation Sec 28, Gurugram               | 66 kV Rapid Metro                              |
| 39      | 132 kV Substation, HSIIDC Bawal, Rewari         | 132 kV Asahi India feeder                      |
| 40      | 220 kV Substation, Mau, Rewari                  | 220 kV Maruti Suzuki India Limited (MSIL) Line |
| 41      | 220 kV Substation, Sec-1 IMT Manesar            | 66 kV Honda & Scooter Feeder                   |
| 42      | 66 kV Substation Sec-4 IMT Manesar              | 66 kV Munjal Kiru Feeder                       |
| 43      | 66 kV Substation Sec-8, Manesar                 | 66 kV Bharti Reality Feeder                    |
| 44      | 220 kV Substation, GIS Sector 95, Gurugram      | 220 kV Maruti Suzuki India Limited (MSIL) Line |
| 45      | 220 kV Substation Lula Ahir, Rewari             | 220 kV Lula Ahir-Jatusana TSS Railway          |
| 46      | 400 kV Substation PGCIL Abdullapur, Yamunanagar | 220 kV Railway TSS CKT-I                       |
| 47      |                                                 | 220 kV Railway TSS CKT-II                      |
| 48      | 132 kV Substation PTPS, Panipat                 | 132 kV Railway Diwana TSS CKT-I                |
| 49      |                                                 | 132 kV Railway Diwana TSS CKT-II               |
| 50      | 132 kV Substation Kalanaur, Rohtak              | 132 kV Railway Kalanaur TSS Line               |
| 51      | 132 kV Substation Assoudha, Rohtak              | 132 kV Railway Assoudha TSS CKT-I              |
| 52      |                                                 | 132 kV Railway Assoudha TSS CKT-II             |
| 53      | 220 kV Substation BBMB Ballabgarh, Faridabad    | 66 kV Railway Ballabgarh TSS Ckt-I             |
| 54      |                                                 | 66 kV Railway Ballabgarh TSS Ckt-II            |
| 55      | 132 kV Substation Chander Khurd, Hissar         | 132kV Railways Jakhal TSS line                 |
| 56      | 132 kV Substation Uchana, Jind                  | 132 kV Railway Ghaso TSS Line                  |

## Q. INADEQUATE OR DEFECTIVE METERS

HVPN has submitted that under the Transmission License, HVPNL has to install and maintain the interface meters for recording the flow of power from HVPNL to distribution licensees i.e. UHBVNL, DHBVNL & Railways. There are 1241 interface metering points between HVPNL & DISCOMs/Railway. Status of Special Energy Meters (SEMs) and Conventional meters installed at various interface with DISCOMs/Railway, as on **30.09.2020** is as under: -

| Description                                                                                          | DHBVNL | UHBVNL | Railways | Total |
|------------------------------------------------------------------------------------------------------|--------|--------|----------|-------|
| Total no. of interface points between licensees i.e. DHBVNL, UHBVNL & Railways                       | 632    | 597    | 12       | 1241  |
| No. of interface points between licensees i.e. DHBVNL, UHBVNL & Railways where SEMs are commissioned | 632    | 597    | 12       | 1241  |
| No. of Metering Points where SEM have not been installed and ECMs are installed                      | 0      | 0      | 0        | 0     |

The interface point w.r.t. State Generator and HVPNL is as under: -

| Name of Generating Plant                                                        | PTPS | WYC | DCRTPP | RGTPP | FGPS | MGSTPP |
|---------------------------------------------------------------------------------|------|-----|--------|-------|------|--------|
| Total No. of Interface Points                                                   | 11   | 3   | 8      | 4     | 4    | 4      |
| No. of interface points where SEMs are commissioned                             | 11   | 3   | 8      | 4     | 4    | 4      |
| No. of Metering Points where SEM have not been installed and ECMs are installed | 0    | 0   | 0      | 0     | 0    | 0      |

| Name of Renewable Energy Generating Plant                                       | Shahabad Sugar Mill | Star wire | Gemco | Sri Jyoti | Narayangarh Sugar Mill |
|---------------------------------------------------------------------------------|---------------------|-----------|-------|-----------|------------------------|
| Total No. of Interface Points                                                   | 1                   | 1         | 1     | 1         | 2                      |
| No of interface points where SEMs are commissioned                              | 1                   | 1         | 1     | 1         | 2                      |
| No. of Metering Points where SEM have not been installed and ECMs are installed | 0                   | 0         | 0     | 0         | 0                      |

As far as the inter-State metering is concerned these meters are installed and maintained by the Central Transmission Utility (Power Grid Corporation of India Ltd.) Adequate back-up systems also exist to avoid metering inadequacies in the system.

As per the CEA (Installation and Operation of Meters) Regulation, 2006 dated 17.03.2006, SEMs has to be installed at all the interface points. The latest status as on 30.09.2020, SEMs has been installed at all the interface points with distribution licensees i.e. UHBVNL, DHBVNL, Railways (Deemed distribution licensee) & Generating points.

In compliance of the Commission' directive that no transmission element forming interface point with any utility is energized without installation and commissioning of SEMs as per CEA Regulations and the main meter/check meter/standby meter shall be installed by HVPN at feeders

emanating from HVPN substation as well as at DISCOM end, the STU vide its letter dated 15.07.2020 and subsequent response have submitted as under:

HVPNL is already following directives of Commission no transmission element forming interface point with any utility is energized without installation and commissioning of SEMs as per CEA Regulations.

Regarding installation of the main meter/check meter/standby meter shall be installed by HVPN at feeders emanating from HVPN substation as well as at DISCOMs' end. HVPNL has submitted that Clause 7 of CEA (Installation and Operation of Meters) Regulations, 2006 Dated 17.03.2006 and its subsequent amendments speaks about the location of meters which is reproduced as under: -

**(i) Locations of meters (B)**

*Location of interface meters, consumer meters and energy accounting and audit meters shall be as per the Table given below:*

| Sr. No. | Stages                                      | Main Meter                                                                                                                                                                                                                          | Check Meter | Standby Meter                                                                                                                                      |
|---------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| B.      | <b>Transmission and Distribution System</b> | At one end of the line between the sub-stations of the same licensee, and at both ends of the line between sub-stations of two different licensees. Meters at both ends shall be considered as main meters for respective licensee. | -           | There shall be no separate standby meter. Meter installed at other end of the line in case of two different licensees shall work as standby meter. |

➤ **HVPNL is already following the above CEA Regulation in respect of installation of meters at interface points.**

(ii) Further, Clause 6 of CEA (Installation and Operation of Meters) Regulations, 2006 Dated 17.03.2006 and its subsequent amendments speaks about ownership of meters which is reproduced as under-

**(1) Interface meters**

(a) *All interface meters installed at the points of interconnection with Inter-State Transmission System (ISTS) for the purpose of electricity accounting and billing shall be owned by CTU.*

(b) *All interface meters installed at the points of interconnection with Intra-State Transmission System excluding the system covered under sub-clause (a)*

*above for the purpose of electricity accounting and billing shall be owned by STU.*

- (c) All interface meters installed at the points of inter connection between the two licensees excluding those covered under sub-clauses (a) and (b) above for the purpose of electricity accounting and Billing shall be owned by respective licensee of each end.**

As such, as per CEA Regulation, the interface meters installed at interconnection between the licensees (HVPNL and DISCOMs) is to be installed by respective licensees of each end. Accordingly, it is submitted that the directive as issued in tariff order dated 21.05.2020 is to reviewed in line with CEA Regulations.

**The Commission considered the reply submitted by HVPNL and reiterate that no transmission element forming interface point with any utility is energized without installation and commissioning of SEMs as per CEA Regulations.**

### 3.7 EMPLOYEE RECRUITMENT AND RETIREMENT

The total number of employees being retired, and recruitment envisaged for the year FY 2020-21 and FY 2021-22 are provided as below:

**Retirements and Recruitments (Nos)**

| Particulars                         | Retirement | No. of Employees Added | Effective | Cumulative |
|-------------------------------------|------------|------------------------|-----------|------------|
| Employees To be added in FY 2020-21 | 152.00     | 1,034.00               | 882.00    | 882.00     |
| Employees To be added in FY 2021-22 | 163.00     | 70.00                  | (93.00)   | 789.00     |

### 3.8 AGGREGATE REVENUE REQUIREMENT

Based on revised estimates of individual items, the licensee has proposed to revise the ARR for the FY 2020-21 approved by the Commission for FY 2020-21 as summarized in the table below:

**Transmission ARR for FY 2020-21 (Rs. Million)**

| Particulars                 | Approved by HERC | APR       | Gap Surplus/ (Deficit) |
|-----------------------------|------------------|-----------|------------------------|
| O&M expenses                | 4,812.60         | 7,740.89  | (2,928.29)             |
| R&M Expenses                | 508.41           | 488.51    | 19.90                  |
| Employee Expenses           | 3,979.37         | 4,792.08  | (812.71)               |
| Terminal Benefits           | (20.90)          | 2,010.10  | (2,031.00)             |
| A&G Expenses                | 345.72           | 450.19    | (104.47)               |
| Depreciation                | 4,247.90         | 4,113.74  | 134.16                 |
| Interest on term Loans      | 2,530.12         | 2,807.79  | (277.67)               |
| Interest on working Capital | 180.38           | 303.48    | (123.1)                |
| Total Expenditure           | 11,771.00        | 14,965.89 | (3,194.89)             |

|                                            |           |           |             |
|--------------------------------------------|-----------|-----------|-------------|
| Return on Equity                           | -         | 3,382.68  | (3,382.68)  |
| Less: Non Tariff Income                    | (222.80)  | (222.80)  | -           |
| Annual Transmission Charges                | 11,548.20 | 18,125.78 | (6,577.58)  |
| Add: Revenue Gap for FY 2019-20            | (485.16)  | 3,263.37  | (3,748.53)  |
| Add: Carrying cost on above                | (65.13)   | 147.67    | (212.8)     |
| Aggregate Revenue Requirement              | 10,997.91 | 21,536.82 | (10,538.91) |
| Transmission Share of SLDC Charges         | 9.99      | 47.62     | (37.63)     |
| Unitary Charges for JKTPL                  | 494.78    | 494.78    | -           |
| Less YTC for Lines Operating As ISTS Lines | 96.9      | 70.28     | 26.62       |
| Total Transmission Charges                 | 11,405.78 | 22,008.94 | (10,603.16) |

The Petitioner has requested the Commission to approve the Revised Aggregate Revenue Requirement for FY 2020-21 as presented in the table above.

### 3.9 REVENUE GAP AND CARRYING COST

Based on the true-up of FY 2019-20 and revised ARR (APR) for FY 2020-21, the Petitioner has computed the carrying cost on the revenue gap for FY 2019-20 and FY 2020-21 considering the applicable SBI base rate and appropriate margin rate which is provided in the table below:

#### Revenue Gap with Carrying Cost for FY 2019-20 and FY 2020-21 (Rs. Million)

| Particulars                            | FY 2019-20 | FY 2020-21 |
|----------------------------------------|------------|------------|
| Approved ARR                           | 13,277.15  | 11,558.19  |
| Proposed Revised ARR                   | 16,540.52  | 18,125.78  |
| Opening Revenue Gap                    | -          | 3,411.04   |
| Addition in Revenue Gap                | 3,263.37   | 6,567.59   |
| Closing Revenue Gap                    | 3,263.37   | 9,978.63   |
| Interest Rate                          | 9.05%      | 8.45%      |
| Carrying Cost                          | 147.67     | 565.71     |
| Closing Revenue Gap with Carrying Cost | 3,411.04   | 10,544.34  |

The petitioner has submitted that as per the precedence set by the HERC on consecutive Tariff Orders from the last couple of years, the Commission may be inclined to following the precedence of not approving the revised estimates for APR for FY 2020-21; the petitioner has requested the Commission to approve the Annual Performance Review for FY 2020-21 because of following reasons:

- The Commission didn't allow the Return on Equity for FY 2020-21 which will affect the cashflows and working capital Management.
- The Adaptation of Govt. of Haryana circular on pension resulted in huge expenditure for Haryana and is projected at Rs. 6030.1 Million and in the interest of consumers and beneficiaries HVPN has decided to claim the Terminal Benefits

of FY 2020-21 in three years equally at Rs. 2010.10 Million per year, which may also result in huge cash crunch to the utility.

The Commission has examined the proposal and observes that the revision is mainly on account of employee cost, terminal benefits and return on Equity and the same is not in accordance with principles adopted while determining the ARR for the FY 2020-21 vide Order dated 07.05.2020. It needs to be noted that regulation 11.6, on the principles for true up provides as under: -

*“11.6 The Commission shall review/consider, during the control period, the application made under this Regulation as also the application for truing up of the ARR of the previous year, as per provision of the Regulation 13, on the same principles as approved in the MYT order on the original application for determination of ARR and tariff. The review / true-up for FY 2019-20 and FY 2020-21 shall, however, be done on the same principles as approved in the tariff order for FY 2019-20 and for FY 2020-21. Upon completion of such review/truing up, either approve the proposed modification with such changes as it deems appropriate, or reject the application for the reasons to be recorded in writing. The Commission shall afford opportunity of being heard to the affected party in case it considers rejecting the application.”*

The Commission has examined the half yearly accounts up to September 2020, submitted by the petitioner and observes that though the employee cost has shown an upward trend and appears that it is likely to exceed the approved cost, the Commission is of the considered view that it would not be appropriate to replace one set of estimated figures with another set of estimates. Further, in view of the fact that the year is over now and it would be appropriate to examine the financial impact at the time of true-up only when the audited figures are available.

### 3.10 REVIEW OF ARR OF STATE LOAD DISPATCH CENTRE

The Petitioner has sought revision in the Capex for the FY 2020-21 and intends to revise Interest on Loan, Return and Equity as well for FY 2020-21 and has prayed that the Commission may approve the revised ARR as submitted below: -

**Proposed ARR for FY 2020-21 (Rs. Million)**

| Particulars       | FY 2020-21              |         |
|-------------------|-------------------------|---------|
|                   | Claimed in the Petition | Revised |
| Employee Expenses | 51.91                   | 51.91   |
| Interest on Capex | 7.57                    | 7.57    |
| Depreciation      | 352.92                  | 46.03   |
| A &G Expenses     | 8.51                    | 8.51    |
| R &M Expenses     | 8.73                    | 5.99    |

|                                 |        |        |
|---------------------------------|--------|--------|
| Less:- Non-Tariff Income        | 1.45   | 1.45   |
| Interest on working capital     | 6.01   | 3.40   |
| Return on Equity                | 73.31  | 50.35  |
| Add: Revenue Gap/Surplus Refund | 83.92  | 83.92  |
| Carrying Cost                   | 3.80   | 3.80   |
| Total                           | 595.22 | 260.03 |

The summary of approved and revised estimates for SLDC business along with Surplus/ (Deficit) is provided below:

**Summary of Surplus/ (Deficit) of SLDC Business (Rs. Million)**

| SLDC Business | Approved by HERC | Revised Estimates | Surplus/ (Deficit) |
|---------------|------------------|-------------------|--------------------|
| <b>TOTAL</b>  | <b>124.86</b>    | <b>260.03</b>     | <b>(135.17)</b>    |

The Petitioner has requested that the Commission may approve the deficit of **Rs. 135.17 Million** and allow the recover the same along True-up Gap for FY 2019-20 with the ARR of FY 2021-22.

The Commission has examined the proposal submitted by the licensee and observes that the ARR for the FY 2020-21 was approved vide order dated 21.05.2020 as proposed by the licensee. The Commission observes that there are minor difference in the projected expenditure in the APR as against approved cost for the FY 2020-21 except for Return on Equity and the resultant increase in interest on working capital. Since the return on equity for SLDC business is not provided for in the MYT regulations, the same cannot be a basis for projecting a revision. **In view of the above observations, the Commission does not find it appropriate to revise the ARR for the SLDC for the FY 2020-21 and the same shall be taken up for true up on the close of the financial year as per the enabling provisions and terms of the MYT Regulations, 2019.**

## CHAPTER 4

### ANNUAL REVENUE REQUIREMENT FOR THE FY 2021-22 AND ANNUAL TRANSMISSION CHARGES & SLDC CHARGES FOR FY 2021-22

#### 4.1. BRIEF BACKGROUND

In line with the HERC MYT Regulations 2019, the petitioner has submitted the Annual Revenue Requirement for FY 2021-22 and proposed annual transmission charges & SLDC charges for FY 2021-22 as presented below.

#### 4.2. OPERATION & MAINTENANCE EXPENSES

##### A. EMPLOYEE COST

The petitioner has submitted that employee cost of FY 2019-20 has been considered as per audited accounts. The inflation factor growth has been considered as per methodology, approved by the Commission in the MYT regulations and computed over FY 2019-20 as presented in the earlier chapters at 4.90%. In addition to the Employee cost, arrived after considering the inflation factor. The terminal benefits estimate for the MYT control period is based on the actuarial valuation as per the report of the actuary.

Employee Cost for FY 2021-22 (in Rs. Million)

| Particulars                                                                     | HERC<br>Approved vide order<br>dated 20.05.2020 | HVPNL<br>Proposed | HERC<br>Revised<br>approval |
|---------------------------------------------------------------------------------|-------------------------------------------------|-------------------|-----------------------------|
| Salaries and Wages                                                              | 2706.20                                         | 3,359.75          | 3,359.75                    |
| Other Staff Cost                                                                | 1129.67                                         | 1,081.24          | 1,081.24                    |
| Staff Welfare Expenses                                                          | 100.83                                          | 99.65             | 99.65                       |
| Benefit from Staff Loans                                                        | 3.23                                            | 2.53              | 2.53                        |
| Add: Employee Cost for Additional Employees<br>(Net of Retires and New Joinees) | 164.94                                          | 458.80            | 458.8                       |
| Less: Employee Benefit for SLDC                                                 | 45.17                                           | 54.45             | 54.45                       |
| <b>Total Employee Cost</b>                                                      | <b>4059.70</b>                                  | <b>4,947.51</b>   | <b>4947.51</b>              |
| Terminal Benefits                                                               | -81.60                                          | 4,002.50          | 2000.00                     |
| <b>Total Employee Cost Incl Terminal Benefits</b>                               | <b>3978.10</b>                                  | <b>8,950.01</b>   | <b>6947.51</b>              |

That the terminal Liability for FY 2021-22 has been claimed on the basis of projection made by actuary may change at time of actual valuation due to change in assumptions/other parameters and also due to GOH circular on return of pension w.e.f. 1.4.79 and the petitioner has requested that the same may allowed based on the audited accounts at the time of True-up.

The Commission has examined the projected employee cost filed by the licensee for the Period under consideration and observes that the additional employee cost proposed by the licensee

amounts to about Rs. 100 crores, apart from terminal benefits cost amounting to Rs. 400 crores. It must be noted that the employee cost including terminal benefits were approved by the Commission, as proposed by the licensee. The Commission observes that the licensee is required to improve its projections of employee cost including the terminal benefits as this cost has come out as the prime contributor to the true up cost including carrying cost. Poor projections also lead to the one set of consumers paying for cost attributable to some other consumer. In the considered view of the Commission, employee cost ought to be known with fair degree of accuracy and projection. Thereto, ought not to be at large variance.

The Commission, however, in order to avoid additional cost on true up, approves enhancement of employee cost as proposed by the licensee in view of the trends observed during the FY 2019-20 and FY 2020-21. Regarding the terminal benefits, the Commission observes that the licensee, on page 37 of its petition, has proposed additional cost on account of terminal benefits at Rs. 603 crores, to be recovered in three installments of Rs. 201 crores each, whereas now at page 39 of the filing it has proposed an additional cost of Rs. 400 crores for FY 2021-22. The Commission, in order to avoid higher true up cost, allows additional terminal benefits amounting to Rs. 200 crores, in view of the fact that the consumers for the ensuing year, 2021-22 are already burdened by the true up cost on account of employee cost and terminal benefits for the FY 2019-20 amounting to Rs. 300 crores. The Commission, on perusal of supporting documents provided by the licensee, further observes that Rs. 600 crores additional liabilities assessed by the licensee is on account of fitment tables approved by the State Government. It may be noted that the licensee has already assessed and recovered Rs. 1000 crores as impact of revision of pension on account of 7<sup>th</sup> Pay Commission report in 2017-18 and the Commission is of the considered opinion that the impact of fitment tables ought not amount to 60% of total arrears; rather it should be in the range of 2% to 5% of arrears. The assumption is based on the historical data of employees as examined by the Commission, in the absence of any justification for the higher assessment provided by the licensee.

The Commission observes that, apart from additional liabilities of Rs. 600 crores on account of fitment tables, the petitioner has also revised pension assessment of pre-2006 serving employees as below:

| <b>Terminal benefit cost assessment submitted by HVPNL (Rs. Million)</b> | <b>FY 20-21</b> | <b>FY 21-22</b> | <b>FY 22-23</b> | <b>FY 23-24</b> | <b>FY 24-25</b> |
|--------------------------------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| As per petition dated 07.01.2020                                         | -20.9           | -81.6           | -81.6           | -81.6           | -81.6           |
| As per petition dated 26.11.2020                                         | 6030.1          | 1992.5          | 1433.9          | 2817.8          | 1957.8          |

The Commission is of the considered view that there has been no revision in the pension benefits of serving employees since the last two years, there ought not be any reason for such drastic upward revision in the liabilities, especially when the trusts have sufficient funds to discharge the assessed liabilities. **The Commission, therefore, directs the licensee to discuss the issues with the actuary in light of the above observations and submit verified data of salary and DA of existing pre-2006 employees to the actuary in order to ascertain the correct additional liability to be funded by the electricity consumers of the state. The Commission further directs the licensee to undertake this exercise within one month of this order.** In view of the above reservations to the current valuations, the Commission provisionally allows Rs 200 crores towards terminal benefits for the FY 2021-22 as against Rs. 400 crores proposed by the licensee in the present petition and – Rs 8.16 crores proposed and approved as per Order dated 20.05.2020. Accordingly, total additional cost on account of employee cost in the FY 2021-22 now amounts to Rs. 600 crores in addition to that already approved vide order dated 20.05.2020. Considering this, there is very little scope for additional allocation. The lower allocation shall, anyway, form part of interest cost on actuarial valuation, and therefore is unlikely to have any negative impact on retirement benefits, especially in view of their fully funded status. The balance cost shall be allowed in coming years. **The licensee is further directed to analyze the employee cost for the last few years to work out a projection methodology that is fair and more accurate, so as to avoid large variation on this account in the ARR.**

#### **B. REPAIR AND MAINTENANCE (R&M) EXPENSES**

The petitioner has submitted that in the MYT Regulations 2019, the R&M expenses have been approved as percentage of GFA with K factor being 0.5% for the entire control period. The R&M expenses for FY 2021-22 have been proposed considering the revised opening GFA for FY 2020-21.

**R&M Cost for FY 2021-22 (In Millions)**

| <b>Particulars</b>        | <b>FY 21-22</b> |
|---------------------------|-----------------|
| Opening GFA               | 1,01,642.80     |
| Closing GFA               | 1,10,310.90     |
| Average GFA               | 1,05,976.85     |
| % of GFA for R&M Expenses | 0.50%           |
| R&M Expense               | 529.88          |

The Commission has examined the R&M calculations proposed by the Licensee and finds the same in accordance with the MYT Regulations. The Commission, however, observes that the actual R&M expenses continue to be much lower than the norm for the past many years, even

when the availability of the transmission system is above the norm. **The Commission directs the licensee to examine the factor used for calculation of normative R&M expenses and submit a proposal to the Commission for rationalizing the same after taking into account both predictive and preventive maintenance.**

### C. ADMINISTRATIVE & GENERAL (A&G) EXPENSES

In line with the MYT Regulations 2019, the Petitioner has projected the A&G expenses for FY 2020-21 as below with an inflation factor as prescribed by the Commission and has submitted that the proposed A&G expenses may be allowed by the Commission, as these are reflective of true A&G expenses likely to be incurred.

**Proposed A&G Expenses for FY 2021-22 (In Millions)**

| Particulars                                             | FY 21-22<br>ARR |
|---------------------------------------------------------|-----------------|
| <b>Administration Expenses</b>                          |                 |
| Rent (Including Lease Rent)                             | 1.97            |
| Insurance                                               | 4.08            |
| Rates and taxes                                         | 91.77           |
| Telephone charges, Postage, Telegram and Telex Charges  | 4.8             |
| Mobile sets Charges                                     | 0.48            |
| Legal and professional                                  | 33.76           |
| Payments to auditors (Including out of pocket expenses) | 0.85            |
| Consultancy charges                                     | 3.46            |
| Professional charges                                    | 4.38            |
| Service charges for computerization                     | 0.84            |
| Conference Expenses                                     | 0.04            |
| Training Expenses                                       | 13.84           |
| Travelling and conveyance                               | 91.77           |
| Other Expenses                                          | 216.55          |
| <b>Sub-Total of Administrative Expenses</b>             | <b>468.59</b>   |
| <b>Other Charges</b>                                    |                 |
| Material Related Expenses                               | 10.55           |
| Expenses on Photostat on Contract Basis                 | 2.01            |
| <b>Sub-Total of other charges</b>                       | <b>12.56</b>    |
| <b>Less: A&amp;G Expenses against SLDC</b>              | <b>8.92</b>     |
| <b>Total Charges</b>                                    | <b>472.23</b>   |

The Commission has examined the projected O&M expenses filed by the licensee for the period under consideration and observes that the Commission has considered and approved A&G expenses amounting to Rs. 281.54 million for the FY 2019-20 as part of true up. The same cost is adjusted for the proposed inflation factor of 4.90% p.a. to arrive at the approved A&G expenses for the FY 2021-22 amounting to Rs. 309.80 million as against the proposed amount of Rs 472.23 for the FY 2021-22.

#### 4.3. DEPRECIATION

The Petitioner has proposed depreciation for FY 2021-22 considering the existing assets and assets likely to be added in the year, in view of the revised Capitalization schedule. The capitalization is computed at 60% of the outstanding CWIP and 40% of CWIP added in the year.

**Depreciation for FY 2021-22 (In Rs. Million)**

| Particulars                    | At Beginning of Year | Addition During Year | Adjustments & Deduction | At End of Year | Rate of Depreciation | At Beginning of Year | Addition During Year | Adjustments & Deduction | At End of Year |
|--------------------------------|----------------------|----------------------|-------------------------|----------------|----------------------|----------------------|----------------------|-------------------------|----------------|
| Land & Land rights             | 3,781.36             | -                    | -                       | 3,781.36       | -                    | -                    | -                    | -                       | -              |
| Building and Civil Works       | 6,185.60             | -                    | -                       | 6,185.60       | 4.38%                | 2,294.60             | 270.93               | -                       | 2,565.53       |
| Plant & Machinery              | 91,280.77            | 8,668.10             | -                       | 99,948.87      | 4.38%                | 36,370.01            | 4,187.93             | -                       | 40,557.94      |
| Furniture & Fixtures           | 258.44               | -                    | -                       | 258.44         | 4.38%                | 161.64               | 11.32                | -                       | 172.96         |
| Vehicles                       | 136.62               | -                    | -                       | 136.62         | 4.38%                | 112.36               | 5.98                 | -                       | 118.34         |
| Less: Generation Assets - BBMB | 4,325.53             | -                    | -                       | 4,325.53       | -                    | 189.46               | -                    | -                       | 189.46         |
| Less: SLDC assets              | 2,352.77             | 2,765.00             | -                       | 5,117.77       | 15.00%               | 477.94               | 767.67               | -                       | 1,245.60       |
| Total                          | 1,01,642.80          | 8,668.10             | -                       | 1,10,310.90    |                      | 38,938.60            | 4,476.16             | -                       | 43,414.77      |

The Commission has examined the projected depreciation filed by the licensee for the MYT Control Period and observes that the licensee has not reduced depreciation on assets funded through consumer contribution. Accordingly, the Commission approves the depreciation proposed by the licensee for the FY 2021-22 after reducing Rs. 216.05 million from the proposed amount i.e. the depreciation on assets funded through consumer contribution at the same level as per the audited accounts for the FY 2019-20. Accordingly, the Commission approves Rs. 4260.11 million towards depreciation for the FY 2021-22.

#### 4.4. INTEREST & FINANCE CHARGES

The interest charges in line with the computation of Interest on Loans has been proposed by the licensee as per the methodology specified in the Regulations with combination of interest on existing loans and on prevailing rates and new loans at SBI base rate + 1.5% on 80% of the capitalized assets for each year and are provided as below:

**Interest and Finance Charges Proposed for FY 2021-22 (In Rs. Million)**

| Particulars                                                                                                                 | FY 21-22<br>ARR |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|
| Interest and Finance Charges on Long Term Loans / Credits from the FIs/banks/organizations approved by the State Government | 2,410.10        |
| Rural Electrification Corp.                                                                                                 |                 |
| Interest on Medium Term Loan from REC                                                                                       |                 |
| Power Finance Corp.                                                                                                         |                 |
| Interest on loan from National Capital Region Plg Board                                                                     |                 |
| Interest on World Bank Loan through State Govt. (WB)                                                                        |                 |
| Interest on loan from NABARD                                                                                                |                 |
| Interest on loan from Market Committee                                                                                      |                 |
| Loan Processing Fee-World Bank Loan                                                                                         |                 |

|                                                                  |          |
|------------------------------------------------------------------|----------|
| Total of A                                                       | 2,410.10 |
| Foreign Exchange Rate Variation                                  | -        |
| Interest on Loan on New Capex (Net of Repayments)                | 1,014.87 |
| Grand Total of Interest & Finance Charges: A + B +C              | 3,424.96 |
| Less: Interest & Finance Charges Chargeable to Capital Account   | -        |
| Net Total of Interest & Finance Charges: For Revenue Account: C- | 3,424.96 |
| Net Interest on Loan                                             | 3,424.96 |

The licensee has submitted that interest computed on New Loans is net of repayments made i.e. the loan component of newly capitalized assets are net-off with the repayments expected for the year.

The Commission has examined the calculations of interest on new term loans and observes that the licensee has neither provided the loan balances nor the rate of interest on which the proposed interest amount has been calculated. In the absence of these crucial data, the Commission, starting with the audited loan balances for the FY 2019-20, has adjusted the same for the new loans estimated to be raised for the approved capital additions during the FY 2020-21 (as approved vide order dated 20.05.2020) and FY 2021-22 (30% funded by equity, Rs 5 crores as consumer contribution and balance through loan). The loan amount is also adjusted for repayment for these years, considered to be equal to the depreciation in accordance with regulation 21.1 (VIII) of the MYT regulations 2019. The rate of interest used by the Commission is 7.47%, is the average rate of interest as per the Audited Accounts for the FY 2019-20. The resultant interest cost is reduced by the amount of IDC (Interest During Construction) while calculating the interest to be recovered in the ARR. The practice of capitalizing interest cost incurred on term loan borrowing before commissioning of a particular asset is in accordance with the Accounting Standards and is being followed by the licensee as evident from the Audited Accounts for the FY 2019-20. The Petitioner has not provided any justification for not considering the same. The Commission, accordingly has reduced IDC from the gross interest on term loans in the same ratio as per the audited accounts for the FY 2019-20. The revised calculation of approved interest on term loan borrowings after considering the above adjustments is presented below: -

**Interest and Finance Charges Approved for FY 2021-22 (In Rs. Million)**

| Particulars                                                      | Rs. Million |
|------------------------------------------------------------------|-------------|
| Opening balance of transmission capex borrowings as on 31.3.2020 | 34403.67    |
| Additions during the FY 2020-21                                  | 7350.00     |
| Repayments During the FY 2020-21                                 | 4288.41     |
| Closing balance as on 31.3.2021                                  | 37465.26    |
| Additions during the FY 2021-22                                  | 4990.00     |
| Repayments During the FY 2021-22                                 | 4820.64     |

|                                                                        |          |
|------------------------------------------------------------------------|----------|
| Closing balance as on 31.3.2022                                        | 37634.62 |
| Average loan during the FY 2021-22                                     | 37549.94 |
| Average rate of interest during the FY 2019-20 as per audited accounts | 7.47%    |
| Interest cost on Capex borrowings during the FY 2021-22                | 2806.31  |
| Less: Interest & Finance Charges Chargeable to Capital Account         | 274.21   |
| Approved Interest and Finance Charges for the FY 2021-22 net of IDC    | 2532.10  |

In view of the aforesaid computational details, the Commission approves Rs 2532.10 Million towards Interest and Finance Charges for the FY 2021-22.

#### 4.5. INTEREST ON WORKING CAPITAL

The interest on working capital has been calculated by the licensee, based on the principles set out in the MYT Regulations 2019. The Interest Rate is considered by the licensee is MCLR + 1.5%. The Commission has examined the methodology adopted by the licensee for calculating interest on working capital and finds the same in accordance with the MYT Regulations. However, since the individual items as proposed by the licensee have been approved by the Commission with certain changes, the amount of approved interest cost on working capital, based on the interest rates as proposed by the licensee, is as under

**Interest on Working Capital for FY 2021-22 (in Rs. Millions)**

| Sr. No. | Particulars                        | FY 2021-22 | FY 2021-22 |
|---------|------------------------------------|------------|------------|
|         |                                    | Proposed   | Approved   |
| 1       | O&M for 1 month                    | 829.34     | 648.93     |
| 2       | Maintenance spares                 | 1,492.82   | 1168.08    |
| 3       | Receivables                        | 1,798.39   | 1598.59    |
| 4       | <b>Total</b>                       | 4,120.55   | 3415.60    |
| 5       | Interest Rate                      | 8.15%      | 8.15%      |
| 6       | <b>Interest on Working Capital</b> | 335.82     | 278.37     |

Accordingly, the Commission approves Rs 278.37 Million towards Interest on Working Capital requirement for the FY 2021-22.

#### 4.6. RETURN ON EQUITY (TRANSMISSION BUSINESS)

The revised return on equity has been estimated by the licensee based on the expected equity contribution on the new capex proposed to be incurred by the Petitioner. The rate of return considered for the return on equity is 14% in line with the MYT Regulations, 2019. New Equity is computed on 20% of the capitalized assets of FY 2021-22 and are provided as below;

**Return on Equity Proposed for FY 2021-22 (in Rs. Millions)**

| Sr. No. | Particulars                                                        | FY 21-22        |
|---------|--------------------------------------------------------------------|-----------------|
|         |                                                                    | ARR             |
| 1       | <b>Equity to be considered for Transmission business (Opening)</b> | 24,950.12       |
| 2       | Add: Equity portion of GFA added                                   | 1,733.62        |
| 3       | Closing equity for RoE                                             | 26,683.74       |
| 4       | Rate of Return                                                     | 14.00%          |
| 5       | Average Equity                                                     | 25,816.93       |
| 6       | <b>RoE - Proposed</b>                                              | <b>3,614.37</b> |

The Commission has considered the submissions made by the licensee and observes that as per the MYT Regulations, 2019, ROE upto 14% can be allowed on the eligible Equity Capital deployed in the Transmission Business. The Commission, taking a holistic view of the power sector in Haryana and given the unprecedented situation emanating from the COVID-19 pandemic and the resulting restriction/lockdown ordered by Central Government/State Government, did not allow any RoE in the FY 2020-21. However, the Commission, in light of present economic scenario and considering the requirement of restoring the licensee to the status, prior to the pandemic, approves the rate of Return on Equity at 10% of average equity utilized in transmission business during the FY 2021-22.

| Sr. No. | Particulars                                                                     | FY 21-22        | FY 21-22        |
|---------|---------------------------------------------------------------------------------|-----------------|-----------------|
|         |                                                                                 | ARR Proposed    | ARR             |
| 1       | <b>Equity to be considered for Transmission business (Opening)</b>              | 24,950.12       | 24,950.12       |
|         | <b>Less Equity relating to assets transferred to SLDC (pg 28 of this Order)</b> |                 | 157.77          |
|         | <b>Adjusted equity as on 31.3.2021</b>                                          |                 | 24,792.35       |
| 2       | Add: Equity portion of GFA added                                                | 1,733.62        | 1,733.62        |
| 3       | Closing equity for RoE                                                          | 26,683.74       | 26,525.97       |
| 4       | Rate of Return                                                                  | 14.00%          | 10.00%          |
| 5       | Average Equity                                                                  | 25,816.93       | 25,659.16       |
| 6       | <b>RoE</b>                                                                      | <b>3,614.37</b> | <b>2,565.92</b> |

Thus, the ROE approved by the Commission for the FY 2021-22 is Rs 2,565.92 Million (rounded off). Having approved the ROE, the Commission observes that the Equity deployed is largely contributed by the State Govt. HVPNL is neither paying any dividend to the State Govt. nor treating it as internal accruals for funding the CAPEX. **Hence, the ROE amounting to Rs 2,565.92 million shall be adjusted towards subsidy payable by the State Govt.**

#### 4.7. NON-TARIFF INCOME

The non-tariff income has been considered in line with the non-tariff income approved in the order dated 21st May 2020 for control period FY 2020-21 to 2024-25 for FY 2021-22.

##### Non-Tariff Income for FY 2021-22 (Rs. Million)

| Particulars       | FY 21-22 (ARR) |
|-------------------|----------------|
| Non Tariff Income | 222.80         |

The Commission has considered the non-tariff income as proposed by the licensee and approves the same i.e., Rs 222.80 million.

#### 4.8. ARR FOR THE FY 2021-22

As discussed in the preceding paragraphs, the revenue requirement for the Transmission business proposed by the petitioner and that approved by the Commission for the FY 2021-22 is presented below:

##### Annual Revenue Requirement for FY 2021-22

| Particulars                 | FY 2021-22<br>HERC Approved<br>as per Order<br>dated 20.05.2020 | 2021-22<br>HVPNL<br>Proposal | FY 2021-22<br>HERC Revised<br>Approval |
|-----------------------------|-----------------------------------------------------------------|------------------------------|----------------------------------------|
| O&M expenses                | 4812.60                                                         | 9,952.13                     | 7787.19                                |
| R&M Expenses                | 508.41                                                          | 529.88                       | 529.88                                 |
| Employee Expenses           | 3979.37                                                         | 4,947.51                     | 4947.51                                |
| Terminal Benefits           | (20.90)                                                         | 4,002.50                     | 2000.00                                |
| A&G Expenses                | 345.72                                                          | 472.23                       | 309.80                                 |
| Depreciation                | 4247.90                                                         | 4,476.16                     | 4260.11                                |
| Interest on term Loans      | 2530.12                                                         | 3,424.96                     | 2532.10                                |
| Interest on working Capital | 180.38                                                          | 335.82                       | 278.37                                 |
| Total Expenditure           | 11771.00                                                        | 18,189.08                    | 14857.77                               |
| Return on Equity            | 0.00                                                            | 3,614.37                     | 2565.92                                |
| Less: Non Tariff Income     | (222.80)                                                        | (222.80)                     | (222.80)                               |
| Annual Transmission Charges | 11548.20                                                        | 21,580.65                    | 17200.89                               |

In addition to the annual transmission cost as approved above, other components forming part of computation of aggregate revenue requirement for the FY 2021-22 are discussed hereunder.

#### 4.9. UNITARY CHARGES

The Commission has granted project specific transmission License, set up under Public Private Partnership (PPP) mode, to M/s Jhajjar KT Transco Private Ltd on 26<sup>th</sup> October, 2010. The above transmission works stands completed and the Concessionaire has achieved Commercial Operation on 12<sup>th</sup> March 2012.

As per Transmission Service Agreement (TSA Clause 26.8.2); the applicable monthly Unitary Charges is being paid by HVPNL to Concessionaire. The base Unitary Charge for the Accounting Year, in which COD occurs (i.e. 2011-12), was Rs. 4,50,00,000/-, and the same is being revised annually by decreasing the Base Unitary Charge for the immediately preceding Accounting Year by 3% thereof and the escalation to reflect 40% of the variation in WPI in accordance with the provisions of the TSA approved by the Commission.

The computation of monthly Unitary Charges for the FY 2021-22 as submitted by HVPNL is presented below: -

| <b>Proposed Unitary Charges (FY 2021-22)</b> |                                                                    |                                                                           |
|----------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>Sr. No.</b>                               | <b>Description</b>                                                 | <b>Amount</b>                                                             |
| 1                                            | Monthly Base Unitary Charge as per Clause 26.2.1 of TA for 2011-12 | 4,50,00,000.00                                                            |
| 2                                            | Yearly reduction (%)                                               | 3%                                                                        |
| 3                                            | Monthly Base Unitary Charge for 2020-21                            | 3,42,10,382.00                                                            |
| 4                                            |                                                                    | 135.2                                                                     |
| 5                                            | WPI for April 2010 (Base Accounting Year)                          | (Published by the Ministry of Industry (Office of Economic Advisor), GOI) |
| 6                                            | WPI for April 2020 preceding the Accounting Year                   | 197.19                                                                    |
| 7                                            |                                                                    |                                                                           |
| 8                                            | Increase in WPI (%)                                                | 45.85%                                                                    |
| 9                                            | WPI Index (40 % of WPI increase) (%)                               | 18.34%                                                                    |
| 10                                           | Increase in Base Unitary Charge linked with WPI                    | 62,74,589.00                                                              |
| 11                                           | Indexed Unitary Charge (Rs) (Sl.No.5+10)                           | 4,04,84,971.00                                                            |
| 12                                           | System Availability (%)                                            | 99.82%                                                                    |
| 13                                           | Normative Availability (%)                                         | 98%                                                                       |
| 14                                           | Incentive due to System Availability                               | 7,52,678.00                                                               |
| 15                                           | Incentive due to less Transmission Losses                          | 2,04,268.00                                                               |
| 16                                           | Unitary Charge + Incentives (Sl.No.11+14+15)                       | 4,14,41,917.00                                                            |
| 17                                           | Monthly Unitary Charges (In Millions)                              | 41.44                                                                     |

As estimated by the licensee, the expected Unitary Charges for the FY 2021-22 is likely to be around **Rs 41.44 Million** per month (approx.) keeping in view the expected increase in WPI and yearly reduction of Base Unitary Charge by 3%. HVPNL has prayed that the Commission may approve the same as part of annual transmission charges for the FY 2021-22.

The Commission has considered the aforementioned submissions and finds the proposed calculation in order. Hence, Rs. 41.44 Million per month is approved for the FY 2021-22. However, the incentive component may be checked and verified by HVPNL w.r.t the actual system availability and transmission loss including the methodology adopted for calculating and claiming the same.

#### 4.10. YEARLY TRANSMISSION CHARGES (YTC) FOR TRANSMISSION LINES INCIDENTAL TO INTER-STATE TRANSMISSION (ISTS) OF ELECTRICITY

It has been submitted that the Commission in its Order dated 31<sup>st</sup> March 2016 had adjusted YTC charges for the corresponding years. However, ISTS charges for the FY 2021-22 have been made in line with draft Petition to be filed with CERC for tariff determination in accordance with Tariff regulations for control period FY 19 to FY 24.

**ISTS Charges for FY 2021-22 (in Rs. Million)**

| S. No.       | Line Name                                                    | FY 2021-22   |
|--------------|--------------------------------------------------------------|--------------|
| 1            | Asset I: 220kV S/C Bhiwadi_Rewari Ckt-1 T/L                  | 6.53         |
| 2            | Asset II: 220kV S/C Bhiwadi-Mau T/L                          | 6.28         |
| 3            | Asset III: 220kV S/C Bhiwadi - Rewari Ckt-2 T/L              | 10.18        |
| 4            | Asset IV: 220kV S/C HSIIDC Bawal _Bhiwadi Ckt-1 T/L          | 18.50        |
| 5            | Asset V: 220kV S/C Pinjore-Kunihar Ckt-1 T/L (LILO at Baddi) | 13.84        |
| 6            | Asset VI: 220kV S/C Pinjore-Kunihar Ckt-2T/L                 | 14.14        |
| <b>TOTAL</b> |                                                              | <b>69.45</b> |

In line with above, the Petitioner has prayed to be allowed the above YTC for intra-state lines operating as ISTS.

It has been further submitted that, the connectivity of above ISTS lines have been modified. The 220kV S/c Bhiwadi-Rewari line is modified to 220 kV D/c Bhiwadi-Rewari Line (Rajasthan-Haryana) and 220 kV D/c Madanpur (Panchkula) – Kunihar (HP) line with LILO of 1 ckt at 220 kV substation Baddi (HP) is changed to 220 D/c Pinjore (Haryana) – Kunihar (HP) line with LILO of 1 ckt at 220 kV substation Baddi (HP). The petition for tariff determination from FY 19- onwards is in the process of filing with the Central Electricity Regulatory Commission. **The Commission has considered the above submissions and finds the proposed calculation in order. Hence, approves the same.**

#### 4.11. AGGREGATE REVENUE REQUIREMENT

As per the foregoing discussions, the proposed ARR of HVPN for the FY 2021-22, as filed by them and that approved by the Commission is presented in the table below.

**Transmission ARR for FY 2021-22 (Rs. Million)**

| Particulars       | FY 2021-22                                  | 2021-22        | FY 2021-22            |
|-------------------|---------------------------------------------|----------------|-----------------------|
|                   | HERC Approved as per Order dated 20.05.2020 | HVPNL Proposal | HERC Revised Approval |
| O&M expenses      | 4812.60                                     | 9,952.13       | 7787.19               |
| R&M Expenses      | 508.41                                      | 529.88         | 529.88                |
| Employee Expenses | 3979.37                                     | 4,947.51       | 4947.51               |

|                                             |                 |                  |                 |
|---------------------------------------------|-----------------|------------------|-----------------|
| Terminal Benefits                           | (20.90)         | 4,002.50         | 2000.00         |
| A&G Expenses                                | 345.72          | 472.23           | 309.80          |
| Depreciation                                | 4247.90         | 4,476.16         | 4260.11         |
| Interest on term Loans                      | 2530.12         | 3,424.96         | 2532.10         |
| Interest on working Capital                 | 180.38          | 335.82           | 278.35          |
| Total Expenditure                           | 11771.00        | 18,189.08        | 14857.75        |
| Return on Equity                            | 0.00            | 3,614.37         | 2565.92         |
| Less: Non Tariff Income                     | (222.80)        | (222.80)         | (222.80)        |
| Annual Transmission Charges                 | 11548.20        | 21,580.65        | 17200.87        |
| Add: Revenue Gap for FY 2019-20             | -485.16         | 3,748.53         | 1536.45         |
| Add: Carrying cost on above                 | -65.13          | 212.80           | 0.00            |
| Add: Revenue Gap for FY 2020-21             | 0.00            | 6,567.59         | 0.00            |
| Add: Carrying cost on above                 | 0.00            | 565.71           | 0.00            |
| <b>Aggregate Revenue Requirement</b>        | <b>10997.91</b> | <b>32,675.28</b> | <b>18737.32</b> |
| Transmission Share of SLDC Charges          | 9.99            | 96.48            | 15.09           |
| Unitary Charges for JKTPPL                  | 494.78          | 497.30           | 497.30          |
| Less: YTC for Lines Operating as ISTS Lines | 96.90           | 69.45            | 69.45           |
| <b>Total Transmission Charges</b>           | <b>11405.78</b> | <b>33,199.61</b> | <b>19180.26</b> |

#### 4.12. SLDC ARR (FY 2021-22)

The licensee has submitted that the computation of expenses for SLDC business has been done in accordance with the MYT Regulations 2019. The Revenue Gap claimed in the FY 2021-22 is without any carrying cost. The Aggregate Revenue Requirement of SLDC for the FY 2021-22 has been projected by HVPNL as under: -

#### Aggregate Revenue Requirement for SLDC for FY 2021-22 (in Rs. Million)

| SLDC Business                    | ARR 2021-22     |
|----------------------------------|-----------------|
| Employees Cost                   | 54.45           |
| Interest on Capex                | 24.79           |
| Depreciation                     | 767.67          |
| A&G expenses                     | 8.92            |
| R&M                              | 18.68           |
| Non-Tariff Income                | 1.45            |
| Interest on Working Capital      | 9.75            |
| Return on equity                 | 156.88          |
| Add: Revenue Gap/ Surplus Refund | 157.23          |
| Carrying Cost                    | 9.06            |
| <b>TOTAL</b>                     | <b>1,205.99</b> |

However, vide memo no. Ch-23/Sr AO/RAU dated 28.01.2021 HVPNL revised the proposed ARR for the FY 2021-22 as under:

**Revised Aggregate Revenue Requirement for SLDC for FY 2021-22 (in Rs. Million)**

| Particulars                     | FY 2021-22              |         |
|---------------------------------|-------------------------|---------|
|                                 | Claimed in the Petition | Revised |
| Employee Expenses               | 54.45                   | 54.45   |
| Interest on Capex               | 24.79                   | 24.79   |
| Depreciation                    | 767.67                  | 56.13   |
| A &G Expenses                   | 8.92                    | 8.92    |
| R &M Expenses                   | 18.68                   | 6.99    |
| Less:- Non-Tariff Income        | 1.45                    | 1.45    |
| Interest on working capital     | 9.75                    | 3.75    |
| Return on Equity                | 156.88                  | 58.71   |
| Add: Revenue Gap/Surplus Refund | 157.23                  | 134.28  |
| Carrying Cost                   | 9.06                    | 8.21    |
| Total                           | 1205.99                 | 354.79  |

Accordingly, request has been made to the Commission to consider the above revised ARR for SLDC Business for FY 2021-22 & to allow the same to meet with the expenditure towards SLDC Business.

At the onset the Commission observes that, as per the existing arrangement, SLDC functions have been entrusted to the State Transmission Utility i.e. HVPNL. The Commission, from time to time beginning with its Order dated 18<sup>th</sup> May, 2009, has expressed its views regarding the necessity of functional autonomy to the SLDC i.e. not only in financial terms but also in decision making. It is reiterated that the Ministry of Power, Government of India, constituted a Committee on “Manpower Certification and Incentives for System Operation and Ring-Fencing Load Despatch Centres” to ensure functional autonomy for Load Despatch Centres. The Committee in its report dated 11<sup>th</sup> August, 2008 observed that functional autonomy would mean taking decisions without being adversely influenced by extraneous issues originating from the Company Management or any of the market players, which can be ensured through:-

- a) Independent governance structure
- b) Separate accounting
- c) Adequate number of skilled manpower having high ethical standards and driven by altruistic values
- d) Adequate logistics / infrastructure.

For implementation of the recommendations of the Committee the Ministry of Power, Government of India created a Task Force vide notification No. 6 / 2 / 2008 – Trans dated 13<sup>th</sup> October, 2008. The action plan formulated by the Task Force was forwarded to

Government of Haryana and HVPNL vide Commission's letter No. 2256-58 / HERC / 2008 dated 19.12.2008 for implementation of the same in the prescribed manner.

Although the accounts of SLDC business stands separated by HVPNL and the Commission has been giving separate order on ARR and tariff applications of SLDC business of HVPNL since FY 2006-07 yet other aspect such as independent governance structure, adequate skilled manpower and adequate logistics / infrastructure are still to be provided to SLDC. Therefore, it becomes utmost important that the action plan recommended by the Task Force is implemented in letter and spirit. The Commission had directed HVPNL to submit detailed action taken report for implementation of the recommendations of the Committee within 30 days from the date of the Order dated 18<sup>th</sup> May, 2009. However, as per the record available in the Commission no progress has been made regarding this important matter. **The Commission, once again, directs HVPNL to take up the issue with the State Government and submit a report to the Commission within one month from the date of this Order.**

The Commission has examined the proposed ARR for the SLDC Business as presented above and finds the same in order except RoE and calculations of the Interest on Working Capital. The MYT Regulations clearly provides that only the equity capital deployed in the transmission business is eligible for RoE and not for the SLDC business. Additionally, the amount of approved Working Capital is arrived at based on the parameters specified by the Commission in the MYT Regulations. The rate of interest, on eligible Working Capital, is as approved for the Transmission Business. The resultant figures for the approved ARR for the FY 2021-22 for the SLDC business approved by the Commission are given in the following table: -

**HERC Approved ARR of SLDC for the FY 2021-22 (Rs. Million)**

| SLDC Business                    | ARR 2021-22<br>Approved Vide HERC<br>Order dated 20.05.2020 | ARR 2021-22<br>Proposed | ARR 2021-22<br>Revised<br>Proposal | ARR 2021-22<br>Approved |
|----------------------------------|-------------------------------------------------------------|-------------------------|------------------------------------|-------------------------|
| Employees Cost                   | 45.17                                                       | 54.45                   | 54.45                              | 54.45                   |
| Interest on Capex                | 16.92                                                       | 24.79                   | 24.79                              | 24.79                   |
| Depreciation                     | 42.66                                                       | 767.67                  | 56.13                              | 56.13                   |
| A&G expenses                     | 6.97                                                        | 8.92                    | 8.92                               | 8.92                    |
| R&M                              | 6.48                                                        | 18.68                   | 6.99                               | 6.99                    |
| Non Tariff Income                | (8.32)                                                      | (1.45)                  | (1.45)                             | (1.45)                  |
| Interest on Working Capital      | 1.99                                                        | 9.75                    | 3.75                               | 2.62                    |
| Return on equity                 |                                                             | 156.88                  | 58.71                              | 0                       |
| Add: Revenue Gap/ Surplus Refund |                                                             | 157.23                  | 134.28                             | 34.16                   |
| Carrying Cost                    |                                                             | 9.06                    | 8.21                               | 1.97                    |
| <b>TOTAL</b>                     | <b>111.87</b>                                               | <b>1,205.99</b>         | <b>354.79</b>                      | <b>188.58</b>           |

The revenue gap of SLDC business on account of True up for the FY 2019-20, i.e. Rs. 34.16 million has been added to the ARR for the FY 2021-22, along with the holding cost in the same ratio as proposed by the licensee.

HERC

## CHAPTER 5

### 5.1. ANNUAL TRANSMISSION CHARGES AND SLDC CHARGES

The annual transmission charges are determined as per the provisions of Regulation 50 of the MYT Regulations 2019 i.e. *“Transmission licensee shall recover the transmission charges at the normative annual transmission system availability factor specified for it by the Commission.”* The details of the annual transmission charges proposed by the licensee are summarized in table below:

**Annual Transmission Charges Proposed for FY 2021-22 (In Rs. Millions)**

|                                                     |                    |                 |
|-----------------------------------------------------|--------------------|-----------------|
| <b>Annual Revenue Requirement for FY 2021-22</b>    | <b>Rs. Million</b> | <b>21580.65</b> |
| Revenue Gap for FY 2019-20 & FY 2020-21             | Rs. Million        | 10316.12        |
| Carrying cost on above                              | Rs. Million        | 778.51          |
| <b>Aggregate Revenue Requirement</b>                | <b>Rs. Million</b> | <b>32675.28</b> |
| Transmission Share of SLDC Charges                  | Rs. Million        | 96.48           |
| Unitary Charges for JKTPCL                          | Rs. Million        | 497.30          |
| Less YTC for Lines Operating as ISTS Lines FY 21-22 | Rs. Million        | 69.45           |
| <b>Total Transmission Charges</b>                   | <b>Rs. Million</b> | <b>33199.61</b> |
| Monthly Transmission Tariff                         | Rs. Million        | 2766.63         |
| Monthly Transmission Charges UHBVNL                 | 45.22%             | 1251.02         |
| Monthly Transmission Charges DHBVNL                 | 53.61%             | 1483.07         |
| Monthly Transmission Charges TPTCL                  | 0.47%              | 12.99           |
| Monthly Transmission Charges NTPC                   | 0.02%              | 0.52            |
| Monthly Transmission Charges CRPCPL                 | 0.00%              | 0.08            |
| Monthly Transmission Charges Northern Railways      | 0.69%              | 18.95           |

The petitioner has submitted that the transmission charges are waived for M/s Marino Power and M/s Orbit as per the applicable regulations of HERC for the captive Solar Power Plants and has submitted that in case of any addition of new beneficiary, the transmission charges would be charged in proportion of the allotted capacity.

**Based on the Commission’s approved true up for the FY 2019-20 and the approved ARR for the FY 2021-22, the approved transmission tariff, for the FY 2021-22, to be recovered in the ratio of transformation capacity provided by the Licensee is given in table below. The Commission observes that the transmission charges so apportioned are only indicative and are based on historical data provided by the licensee. The actual transmission tariff to be charged from existing and prospective beneficiaries shall, strictly, be in accordance with the relevant provisions of the MYT Regulations, 2019.**

### Approved Transmission Charges for the FY 2021-22 (Rs. Million)

|                                                     |                    | HVPNL Proposed Transmission Tariff for the FY 2021-22 | HERC Approved Transmission Tariff for the FY 2021-22 |
|-----------------------------------------------------|--------------------|-------------------------------------------------------|------------------------------------------------------|
| <b>Annual Revenue Requirement for FY 2021-22</b>    | <b>Rs. Million</b> | <b>21580.65</b>                                       |                                                      |
| Revenue Gap for FY 2019-20 & FY 2020-21             | Rs. Million        | 10316.12                                              |                                                      |
| Carrying cost on above                              | Rs. Million        | 778.51                                                |                                                      |
| <b>Aggregate Revenue Requirement</b>                | <b>Rs. Million</b> | <b>32675.28</b>                                       |                                                      |
| Transmission Share of SLDC Charges                  | Rs. Million        | 96.48                                                 |                                                      |
| Unitary Charges for JKTPCL                          | Rs. Million        | 497.3                                                 |                                                      |
| Less YTC for Lines Operating as ISTS Lines FY 21-22 | Rs. Million        | 69.45                                                 |                                                      |
| <b>Total Transmission Charges</b>                   | <b>Rs. Million</b> | <b>33199.61</b>                                       | <b>19180.263</b>                                     |
| Monthly Transmission Tariff                         | Rs. Million        | 2766.63                                               | 1598.355                                             |
| Monthly Transmission Charges UHBVNL                 | 45.22%             | 1251.02                                               | 722.776                                              |
| Monthly Transmission Charges DHBVNL                 | 53.61%             | 1483.07                                               | 856.878                                              |
| Monthly Transmission Charges TPTCL                  | 0.47%              | 12.99                                                 | 7.512                                                |
| Monthly Transmission Charges NTPC                   | 0.02%              | 0.52                                                  | 0.320                                                |
| Monthly Transmission Charges CRPCPL                 | 0.00%              | 0.08                                                  | 0.000                                                |
| Monthly Transmission Charges Northern Railways      | 0.69%              | 18.95                                                 | 11.029                                               |

### 5.2. SHARE OF SLDC CHARGES AS PER HERC MYT REGULATIONS 2019

As per the HERC MYT Regulations 2019. "The annual charges of SLDC is determined as a single composite charge from the beneficiaries as under: -

|                                            |                                       |
|--------------------------------------------|---------------------------------------|
| <i>Intra – State Transmission Licensee</i> | <i>8% of the Annual SLDC Charges</i>  |
| <i>Generating Stations and Sellers</i>     | <i>46% of the Annual SLDC Charges</i> |
| <i>Distribution Licensees and Buyers</i>   | <i>46% of the Annual SLDC Charges</i> |

In line with the above and HERC MYT Regulation 2019, petitioner has apportioned the SLDC Charges for FY 2020-21 among the different beneficiaries as per the table below:

### Proposed SLDC Charges for FY 2021-22 (in Rs. Million)

| Beneficiaries                                   | Share                                       | Total (Rs. Millions)<br>FY 2021-22 |
|-------------------------------------------------|---------------------------------------------|------------------------------------|
| HVPN @ 8%                                       | -                                           | 96.4792                            |
| <b>Generating Companies &amp; Sellers @ 46%</b> | <b>Installed Capacity /Capacity (in MW)</b> | <b>554.7554</b>                    |
| HPGCL                                           | 2,582.40                                    | 324.9853                           |
| Faridabad Gas Power Plant                       | 432.00                                      | 54.3656                            |
| Mahatma Gandhi Super Thermal Power Station      | 1320.00                                     | 166.1170                           |
| Gemco Biomass                                   | 8.00                                        | 1.0068                             |
| Star Wire India Ltd                             | 9.90                                        | 1.2459                             |
| Sri Jyoti                                       | 9.50                                        | 1.1955                             |
| Shahbad Co-operative Sugar Mills                | 24.00                                       | 3.0203                             |
| Naraingarh Sugar Mil                            | 22.40                                       | 2.8190                             |

| Beneficiaries                                                       | Share                              | Total (Rs. Millions)<br>FY 2021-22 |
|---------------------------------------------------------------------|------------------------------------|------------------------------------|
| <b>Distribution Licensees and Buyers @ 46%</b>                      | <b>Transformation Ratio (in %)</b> | <b>554.7554</b>                    |
| UHBVNL                                                              | 45.1749%                           | 250.6105                           |
| DHBVNL                                                              | 53.5544%                           | 297.0958                           |
| Tata Power Trading Company Limited                                  | 0.4690%                            | 2.6020                             |
| NTPC                                                                | 0.0189%                            | 0.1049                             |
| CRPCPL                                                              | 0.0028%                            | 0.0155                             |
| Northern Railways                                                   | 0.6844%                            | 3.7970                             |
| Merino Panel Products                                               | 0.0189%                            | 0.1049                             |
| Orbit Resorts Limited                                               | 0.0284%                            | 0.1574                             |
| M/S Sky City Hotels Pvt. Ltd.                                       | 0.0019%                            | 0.0105                             |
| M/s Asian Paints Limited                                            | 0.0189%                            | 0.1049                             |
| M/s Goodrich Carbohydrates Ltd.                                     | 0.0091%                            | 0.0503                             |
| M/s Dorset Industries Pvt. Ltd.                                     | 0.0034%                            | 0.0189                             |
| M/s KRBL Ltd.                                                       | 0.0036%                            | 0.0199                             |
| M/s G.S. Spinning Mills                                             | 0.0038%                            | 0.0210                             |
| M/s Garg Spinning Mills                                             | 0.0038%                            | 0.0210                             |
| M/s Bhartiya Spinners Ltd.                                          | 0.0038%                            | 0.0210                             |
| <b>TOTAL (HVPN + GENERATING COMPANIES + DISTRIBUTION LICENSEES)</b> |                                    | <b>1,205.9900</b>                  |

The petitioner has submitted that in case of any addition of new beneficiary, the transmission charges would be charged in proportion of the allotted capacity.

Based on the details of transformation capacity and the generation capacity, the Commission has apportioned the approved SLDC charges. The petitioner may note that the SLDC charges, so apportioned, are only indicative and the actual recovery of the charges from existing and prospective beneficiaries shall be strictly in accordance with the relevant provisions of the MYT Regulations, 2019.

**Approved SLDC charges for the FY 2021-22 (Rs. Million)**

| Beneficiaries                                   | Share                                       | Proposed Annual SLDC Charges | Approved Annual SLDC Charges |
|-------------------------------------------------|---------------------------------------------|------------------------------|------------------------------|
| <b>HVPN @ 8%</b>                                | -                                           | 96.4792                      | <b>15.0862</b>               |
| <b>Generating Companies &amp; Sellers @ 46%</b> | <b>Installed Capacity /Capacity (in MW)</b> | <b>554.7554</b>              | 86.7455                      |
| HPGCL                                           | 2,582.40                                    | 324.9853                     | 50.8170                      |
| Faridabad Gas Power Plant                       | 432                                         | 54.3656                      | 8.5010                       |
| Mahatma Gandhi Super Thermal Power Station      | 1320                                        | 166.117                      | 25.9752                      |
| Gemco Biomass                                   | 8                                           | 1.0068                       | 0.1574                       |
| Star Wire India Ltd                             | 9.9                                         | 1.2459                       | 0.1948                       |
| Sri Jyoti                                       | 9.5                                         | 1.1955                       | 0.1869                       |
| Shahbad Co-operative Sugar Mills                | 24                                          | 3.0203                       | 0.4723                       |
| Naraingarh Sugar Mil                            | 22.4                                        | 2.819                        | 0.4408                       |

| Distribution Licensees and Buyers @ 46%                             | Transformation Ratio (in %) | 554.7554        | 86.75           |
|---------------------------------------------------------------------|-----------------------------|-----------------|-----------------|
| UHBVNL                                                              | 45.1749%                    | 250.6105        | 39.1872         |
| DHBVNL                                                              | 53.5544%                    | 297.0958        | 46.4560         |
| Tata Power Trading Company Limited                                  | 0.4690%                     | 2.602           | 0.4068          |
| NTPC                                                                | 0.0189%                     | 0.1049          | 0.0164          |
| CRPCPL                                                              | 0.0028%                     | 0.0155          | 0.0024          |
| Northern Railways                                                   | 0.6844%                     | 3.797           | 0.5937          |
| Merino Panel Products                                               | 0.0189%                     | 0.1049          | 0.0164          |
| Orbit Resorts Limited                                               | 0.0284%                     | 0.1574          | 0.0246          |
| M/S Sky City Hotels Pvt. Ltd.                                       | 0.0019%                     | 0.0105          | 0.0016          |
| M/s Asian Paints Limited                                            | 0.0189%                     | 0.1049          | 0.0164          |
| M/s Goodrich Carbohydrates Ltd.                                     | 0.0091%                     | 0.0503          | 0.0079          |
| M/s Dorset Industries Pvt. Ltd.                                     | 0.0034%                     | 0.0189          | 0.0029          |
| M/s KRBL Ltd.                                                       | 0.0036%                     | 0.0199          | 0.0031          |
| M/s G.S. Spinning Mills                                             | 0.0038%                     | 0.021           | 0.0033          |
| M/s Garg Spinning Mills                                             | 0.0038%                     | 0.021           | 0.0033          |
| M/s Bhartiya Spinners Ltd.                                          | 0.0038%                     | 0.021           | 0.0033          |
| <b>TOTAL (HVPN + GENERATING COMPANIES + DISTRIBUTION LICENSEES)</b> |                             | <b>1,205.99</b> | <b>188.5772</b> |

### 5.3. PROSPECTIVE SHORT-TERM OPEN ACCESS CHARGES (STOA)

Transmission Charges from Short Term Consumers shall be recovered as per Regulation 50 of the HERC MYT Regulations 2019 as may be amended from time to time i.e. “..... the transmission charges shall be payable by the short-term open access consumers for the scheduled energy drawl at per kWh rate as worked out by dividing the annual transmission charges by the total volume of energy transmitted by the transmission licensee during the previous year.”

As such, the petitioner has submitted the following calculation of the Transmission Charges to be recovered from Prospective Short-Term Open Access consumers.

#### Transmission Charges to be recovered by Short-Term Open Access Consumers

| STOA Charges (Rs. Mn)                                                              | Amount    |
|------------------------------------------------------------------------------------|-----------|
| Total Transmission Cost for FY 2021-22                                             | 33,199.61 |
| Actual Energy Transmitted by HVPN calculated at state bus bar for FY 2019-20 (MUs) | 53,973.10 |
| Proposed Charges                                                                   | 0.62      |

Based on the Approved Transmission charges for the FY 2021-22, the Commission approves the Transmission charges payable by the short-term Open Access Consumers as per the details provided in the table that follows: -

| Approved STOA Charges (Rs. Mn)                                                  | Amount    |
|---------------------------------------------------------------------------------|-----------|
| Transmission Cost for FY 2021-22                                                | 18,737.32 |
| Unitary Charges                                                                 | 497.30    |
| Total                                                                           | 19,234.62 |
| Total Energy transmitted by HVPNL for the FY 2019-20 (MU) (as per HVPNL Filing) | 53,973.10 |
| Proposed Charges                                                                | 0.36      |

#### 5.4. RECOVERY OF SLDC CHARGES FROM SHORT TERM OPEN ACCESS CONSUMERS

The short-term open access consumers shall pay composite SLDC charges as provided in HERC (Terms and conditions for grant of connectivity and open access for intra-State transmission and distribution system), Regulations, 2019 as may be amended from time to time.

#### 5.5. REACTIVE ENERGY CHARGES:

The reactive energy charges are payable by the Discoms as per Regulation 48 of the HERC MYT Regulations which provides that '*the reactive energy charges shall be as provided in the Haryana Grid Code as amended from time to time*'. Clause 5.5 of the HERC Haryana Grid Code (HGC) Regulations, 2009 govern the charges for the reactive energy drawl/injection from/to State Transmission System i.e. for VAR exchanges with the State Transmission System.

The Commission, vide Order dated 03.09.2020, in Sou Motu proceedings, had directed HVPNL as below:

*"In view of the above discussions, the Commission adopts the following procedure for management of Reactive Energy Charges receivable from/ payable to the NRPC as also on account of recovery/ payment of Reactive energy charges for VAR exchanges with Intra State Transmission System from the regional entities within the state of Haryana, depending upon the Reactive Energy consumption by them, as worked out by SLDC in accordance with the Haryana Grid Code, 2009 as amended from time to time, on monthly basis: (a) SLDC shall maintain a fund in its books of accounts in the name and style of Reactive Energy Pool Fund Account.*

*(b) The amounts received from NRPC shall be credited to above fund and the amounts paid to NRPC shall be debited to above fund. The recovery of Reactive energy charges for VAR exchanges within the Intra State Transmission System of Haryana (primarily UHBVNL, DHBVNL and Northern Railways, OA consumers, etc.) shall be credited to above fund and the amounts to be paid to such entities shall be debited to the above fund.*

*(c) The amounts shall be deposited in the bank account specially opened for this purpose. Considering the volume of funds in the bank account and the position of receivable/payables, SLDC may invest the funds in fixed deposit of banks till such time they are utilised.*

*(d) SLDC shall raise invoices of recovery/ payment of Reactive energy charges for VAR exchanges with STS, in accordance with the State Grid Code, within a period of 15*

*days of the close of each month. However, for the Distribution licensees, where the variation is very high, the accounts shall be balanced every six months and only the net amount shall be recovered or paid. In case the payables are higher than the receivables, the funds received from NRPC, if available, shall be utilised to bridge the gap.*

*(e) The SLDC shall always maintain sufficient balance in the Reactive energy pool account equal to last three years annual average deficit/ penalty amount levied by NRPC/ NRLDS on this account.*

*(f) SLDC shall file a periodic (quarterly) status of the fund including utilisation with the Commission and also put it on its website.*

*(g) After the close of each financial year, considering the position of receivables and payables on account of Inter-State Reactive Energy Pool Account, in case the position permits, the surplus amount, including interest earned, shall be utilized by SLDC in accordance with the directions issued by the Commission from time to time. SLDC shall submit a complete proposal in this regard along with relevant detail/ data in support of the proposed investment along with the true up petition.*

The Commission observes that the petitioner has neither submitted the calculations of the Surplus funds in the RE Pool Account, nor any proposal for utilization of these funds has been submitted. The Commission, vide memo no 4298/HERC/PRO75 of 2020 dated 28.12.2020, pointed out the absence of the required information in this regard. The petitioner, in reply has submitted that as per the directions of HERC, a separate account in the name and style of State Reactive Energy Pool Account has already been maintained with Canara Bank, Sector-10, Panchkula. Further, the process has been initiated to maintain a fund in the name and style of Reactive Energy Pool Fund Account in the books of account as per the HERC order dated 03.09.2020. The utilization of RE fund is being studied, considering the provisions laid in the Electricity Grid Code and also by other utilities/RLDC, the detailed proposal shall be submitted. However, no such proposal has been submitted till date. **The Commission directs that the proposal in this regard shall be submitted by the licensee/Discoms immediately, and in no case later than 1 month from the date of this order.**

## **DIRECTIVES GIVEN IN THE ORDER**

### **i. Employee Cost:**

The Commission directs HVPNL to submit a proposal for calculating terminal benefits which would be able to take care of both these aspects (proposed and actual both based on actuarial valuation) along with the next ARR petition in view of the fact that as per the audited accounts the actuarial liability, is fully funded as on 31.3.2020.

### **ii. Trends in Transmission Losses**

The Commission directs the licensee to provide status of SAMAST Project along with detailed time lines for rolling out it within three months.

In view of foregoing discussions, the Commission is of the view that still there is scope for further reduction in existing loss and observes that target fixed for transmission losses in the MYT Regulations 2019 are realistic and achievable. The licensee must put in sincere and consistent efforts to reign in its transmission losses with in prescribed norms.

### **iii. Transmission System Availability**

The Commission reiterate that the licensee ought to maintain the target availability as per norms specified in MYT Regulations, 2019 and to achieve the target availability by closely monitoring the transmission system at division level. Live-line maintenance techniques are available and licensee must ensure that these are adopted to improve system availability.

### **iv. Failures of Power Transformers**

- a) The Commission directs the STU to provide the time line to replace/rehabilitate above balanced identified sick transformers after obtaining approval of the competent authority of the STU and the action plan taken to replace/rehabilitate sick transformers working in the field, circle wise with detail of transformers during FY 2020-21 with in three months.
- b) The licensee is directed that the status of circle-wise /substation-wise observations pending, added during the year, attended and pending in FY 2019-20 and FY 2020-21 be provided.

### **v. Identification of defective LAs/GO Switches/defective earthing at 1st H-pole of 11 KV feeders emanating from HVPNL substations:**

The Commission directs the licensee to pursue with DISCOMs to ensure the defects are removed within two months to minimize outage of system and give more reliable supply. The progress of the above work be intimated to the Commission after three months

**vi. Plans for improving the System Power Factor**

The Commission directs the licensee to expedite the repair of defective capacitor banks in its substations and ensure the healthiness of the capacitor banks installed in the system. HVPNL is directed to provide the progress of repair/rehabilitation of the capacitor banks with name of substation within three months of the order.

**vii. Employee Cost**

- a) The Commission, therefore, directs the licensee to discuss the issues with the actuary in light of the above observations and submit verified data of salary and DA of existing pre-2006 employees to the actuary in order to ascertain the correct additional liability to be funded by the electricity consumers of the state. The Commission further directs the licensee to undertake this exercise within one month of this order.
- b) The licensee is further directed to analyze the employee cost for the last few years to work out a projection methodology that is fair and more accurate, so as to avoid large variation on this account in the ARR.

**viii. Repair and Maintenance (R&M) Expenses**

The Commission directs the licensee to examine the factors used for calculation of normative R&M expenses and submit a proposal to the Commission for rationalizing the same after taking into account both predictive and preventive maintenance.

**ix. Ringfencing of SLDC**

The Commission, once again, directs HVPNL to take up the issue of ringfencing of SLDC with the State Government and submit a report to the Commission within one month from the date of this Order.

**x. Reactive Energy Charges:**

The Commission directs that the proposal for utilization of Surplus funds in the Reactive Energy Pool Fund Account shall be submitted by the licensee/Discoms immediately, and in no case later than 1 month from the date of this order.

**The Licensee shall implement the tariff and charges determined / approved by the Commission w.e.f. 01.04.2021.**

**This Order is signed, dated and issued by the Haryana Electricity Regulatory Commission on 9<sup>th</sup> March, 2021. The petition is accordingly disposed of.**

**Date: 09.03.2021  
Place: Panchkula**

**(Naresh Sardana)  
Member**

**(Pravindra Singh Chauhan)  
Member**

HERC