



महाराष्ट्र विद्युत नियामक आयोग
Maharashtra Electricity Regulatory Commission

Ref. No. MERC/FAC/2020-2021/E-Letter

Date: 28 February 2021

To,
The Managing Director,
Tata Power Company Limited,
Dharavi Receiving Station,
New Shalimar Industrial Estate,
Matunga, Mumbai – 400 019

Subject: Post facto approval of TPC-D's Fuel Adjustment Charges (FAC) for the period of January, 2020 to March, 2020.

Reference: 1. FAC submission vide email dated 3 June 2020 for post-facto approval from January, 2020 to March, 2020. 2. Replies to Data gap submitted on 13 July 2020

Sir,

Upon vetting the FAC calculations for the months of January, 2020 to March, 2020 (Q4 of FY 2019-20) as mentioned in the above reference, the Commission has accorded post facto approval to TPC-D for charging FAC to its consumers as shown in the table below:

| Month | January, 2020 | February, 2020 | March, 2020 |
|--------------------------------------|---------------|----------------|-------------|
| Z _{FAC} allowed (Rs. Crore) | 9.30 | 3.02 | 16.64 |

TPC-D has claimed net cumulative un-recovered FAC of Rs. 13.67 Crore at the end of March, 2020 against which the Commission has approved Rs. 19.66 Crore (based on cumulative allowance/disallowance from Q1 to Q4 of FY 2019-20), which is explained in detail in paras 9.2 to 9.6 of the enclosed Report.

As FY 2019-20 is already over and provisional True-up of FY 2019-20 has also been done in recent MYT Order dated 30 March, 2020, the aforesaid FAC amount would be adjusted at the time of final True-up of FY 2019-20 under the MERC (Multi Year Tariff) Regulations, 2015.

Yours faithfully,

(Prafulla Varhade)
Director (EE)

Encl: Annexure A: Detailed Vetting Report for the period of January, 2020 to March, 2020.



**POST FACTO APPROVAL FOR FAC CHARGES FOR THE MONTHS OF JANUARY,
2020 TO MARCH, 2020**

Subject: Post facto approval of TPC-D's Fuel Adjustment Charges (FAC) for the period of January, 2020 to March, 2020.

Reference: TPC-D's FAC submission vide email dated 3 June and 12 July 2019 for post-facto approval of FAC for the period from January, 2020 to March, 2020.

1. FAC submission by TPC-D:

1.1 TPC-D has submitted FAC submissions for the months of January, 2020 to March, 2020 as referred above. Upon vetting the FAC calculations, taking cognizance of all the submissions furnished by TPC-D, the Commission has accorded post facto approval for the FAC amount which is to be charged in the billing months of March, 2020 to May, 2020.

2. Background

2.1 On 21 October, 2016, the Commission has issued Tariff Order for TPC-D, (Case No.47 of 2016) for True-up of FY 2014-15, provisional Truing-up for FY 2015-16, and Aggregate Revenue Requirement and Tariff for FY 2016-17 to FY 2019-20. Revised Tariff has been made applicable from 1 October, 2016.

2.2 On 12 September, 2018, the Commission has issued Tariff Order for TPC-D (Case No.69 of 2018) for Mid-Term Review, including Truing-up of FY 2015-16 and FY 2016-17, provisional Truing-up for FY 2017-18, and revised Aggregate Revenue Requirement and Tariff for FY 2018-19 to FY 2019-20. Revised Tariff has been made applicable from 1 September, 2018.

2.3 On 30 March, 2020, the Commission has issued MYT Tariff Order for TPC-D (Case No.326 of 2019) for Truing-up of FY 2017-18 and FY 2018-19, provisional Truing-up for FY 2019-20, and Aggregate Revenue Requirement and Tariff for FY 2020-21 to FY 2024-25. Tariff has been made applicable from 1 April, 2020.



- 2.4 Vide its letter dated 15 November, 2016, the Commission communicated the excel formats for filing of FAC submissions to all Distribution Licensees. The Commission also directed all Distribution Licensees to submit FAC computations, including details pertaining to variation in fuel cost of generators for the approval of the Commission.
- 2.5 Vide FAC vetting Report dated 16 January, 2017, the Commission accorded prior approval to the FAC for the month of October, 2016.
- 2.6 In terms of MERC (MYT) Regulations, 2015 a Distribution Licensee is required to obtain post facto approval of the Commission on a quarterly basis for FAC charges. Accordingly, vide its email dated 3 June and 12 July 2020, TPC-D has filed FAC submissions for the months of January, 2020 to March, 2020 for post facto approval. The Commission has scrutinized the submissions provided by TPC-D and has also verified the fuel and power purchase bills provided along with its submissions.

3. Energy Sales of the Licensee

- 3.1 Net energy sales within licence area as submitted by TPC-D for the months of Q4 FY 2019-20 in the FAC submission vis-a-vis sales as approved by the Commission in MTR Order for FY 2019-20 is shown in the Table below.

| Consumer Category | Approved in MTR Order (MU) | Monthly Approved (MU) | Actual Sales | | |
|-----------------------------------------|----------------------------|-----------------------|--------------|--------------|--------------|
| | | | Jan' 20 (MU) | Feb' 20 (MU) | Mar' 20 (MU) |
| | (I) | (II=I/12) | (III) | (IV) | (V) |
| LT Category | | | | | |
| LT I(B) – Residential | 2072.63 | 172.72 | 128.59 | 121.90 | 134.00 |
| LT II(A) - Commercial upto 20 kW | 163.38 | 13.62 | 13.21 | 12.73 | 13.65 |
| LT II(B) - Commercial 20 to 50 kW | 96.94 | 8.08 | 7.29 | 7.37 | 9.09 |
| LT II(C) - Commercial > 50 kW | 318.15 | 26.51 | 27.33 | 24.49 | 28.23 |
| LT III(A) - Industrial upto 20 kW | 36.07 | 3.01 | 3.09 | 3.30 | 3.30 |
| LT III(B) - Industrial > 20 kW | 202.40 | 16.87 | 19.23 | 15.22 | 17.55 |
| LT IV - PWW & Sewage Treatment Plants | 25.80 | 2.15 | 0.16 | 0.11 | 0.13 |
| LT V - Advertisement & Hoardings | 0.10 | 0.01 | 0.01 | 0.01 | 0.01 |
| LT VI – Streetlights | 0.75 | 0.06 | 0.07 | 0.06 | 0.03 |
| LT VII(A) - Temporary Religious | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| LT VII(B) - Temporary Others | 32.58 | 2.72 | 2.16 | 1.86 | 2.51 |
| LT VIII - Crematoriums & Burial Grounds | 0.29 | 0.02 | 0.02 | 0.04 | 0.03 |



| Consumer Category | Approved in MTR Order (MU) | Monthly Approved (MU) | Actual Sales | | |
|--------------------------------------------------------------------|----------------------------|-----------------------|---------------|---------------|---------------|
| | | | Jan' 20 (MU) | Feb' 20 (MU) | Mar' 20 (MU) |
| | (I) | (II=I/12) | (III) | (IV) | (V) |
| LT IX(A) - Public Service Govt Hospital & Educational Institutions | 2.09 | 0.17 | 0.30 | 0.32 | 0.43 |
| LT IX(B) - Public Services Others | 0.09 | 0.01 | 1.39 | 1.66 | 1.89 |
| LT XI - Electric Vehicle Charging Stn. | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 |
| Sub Total | 2951.30 | 245.94 | 202.86 | 189.08 | 210.87 |
| HT Category | | | | | |
| HT I – Industry | 925.25 | 77.10 | 67.82 | 66.03 | 63.62 |
| HT II – Commercial | 644.60 | 53.72 | 30.18 | 36.00 | 32.94 |
| HT III - Group Housing Society (Resi) | 3.76 | 0.31 | 1.05 | 1.00 | 0.97 |
| HT IV - PWW & Sewage Treatment Plants | 76.00 | 6.33 | 6.16 | 5.71 | 6.03 |
| HT V(A) - Railways 22/33 kV | 70.08 | 5.84 | 4.84 | 5.15 | 4.68 |
| HT V(B) - Railways Metro & Monorail | 11.77 | 0.98 | 0.00 | 0.00 | 0.00 |
| HT VI(A) - Public Service Govt Hospital & Educational Institutions | 14.66 | 1.22 | 1.10 | 1.06 | 1.09 |
| HT VI(B) - Public Services Others | 166.37 | 13.86 | 8.77 | 10.46 | 7.06 |
| HT VII - Temporary Supply | 37.21 | 3.10 | 3.73 | 3.75 | 2.69 |
| Sub Total | 1949.70 | 162.48 | 123.66 | 129.14 | 119.09 |
| Total | 4901.00 | 408.42 | 326.52 | 318.23 | 329.97 |

3.2 **Total actual sale for January, February and March, 2020 is 326.42 MUs, 318.23 MUs and 329.97 MUs respectively which lower compared to 408.42 MUs of sales approved vide MTR Order.** Variation in energy sale during the aforesaid period was primarily on account of lower sales in some categories like LT-I (B) Residential, HT I- Industrial, HT II – Commercial and HT VI(B) - Public Services others. In response to the query for lower sales, **TPC-D has stated that lower sales during Q4 of FY 2019-20 was due to seasonal impact.**

4. Cost of Power Purchase

4.1 TPC-D purchases majority of its power from TPC-G. Further, TPC-D also procures power from other sources in order to fulfil the demand of its consumers. The following are the list of sources from which TPC-D procures power to meet its demand.

a) Purchases from Tata Power Company Ltd. (TPC-G)



- b) Renewable energy procurement (RPS)
- c) Bilateral contracts and decrements to the imbalance pool.
- d) Unscheduled Interchanges (Interstate UI)

4.2 For present quarter, TPC-D was asked to confirm, whether the MOD principle has been followed while scheduling power from various sources. On response to same TPC-D has replied that the Merit Order Despatch (MOD) is run by State Load Despatch Centre (MSLDC) and TPC-D gets the drawl schedules, accordingly from SLDC. **TPC-D has followed such schedule provided by SLDC during the months of January to December, 2020.**

4.3 The following Table shows the variation in average power purchase cost (APPC) (Rs/kWh) for the month of January, 2020 to March, 2020 as compared to average power purchase cost approved in Tariff Orders dated 12 September, 2018.

| Particulars | Approved** for October, 2019 | | | Actual for January, 2020 | | | Remarks |
|--------------|------------------------------|---------------|-------------|--------------------------|---------------|-------------|------------------------------------------------------------------------------------------------|
| | Net Purchase | Cost | APPC | Net Purchase | Cost | APPC | |
| | MU | Rs. Crore | Rs/kWh | MU | Rs. Crore | Rs/kWh | |
| TPC-G | 295.32 | 131.63 | 4.46 | 303.58 | 134.74 | 4.44 | Decrease in APPC mainly due to decrease in coal price and relatively higher generation |
| RE Sources# | 58.96 | 25.62 | 4.34 | 16.73 | 10.62 | 6.35 | Higher APPC mainly due to REC purchase cost and absence of RE power from new envisaged sources |
| Bilateral@ | 44.08 | 12.63 | 2.87 | 6.49 | 1.85 | 2.85 | Prices as per power exchange and bilateral contract |
| Others | - | - | - | 2.00 | 0.66 | 3.31 | Includes UI, standby power and OLA Sale |
| Total | 398.36 | 169.88 | 4.26 | 329.43 | 148.12 | 4.50 | |



| Particulars | Approved** for October, 2019 | | | Actual for February, 2020 | | | Remarks |
|--------------|------------------------------|---------------|-------------|---------------------------|---------------|-------------|--------------------------------------------------------------------------------------------------|
| | Net Purchase | Cost | APPC | Net Purchase | Cost | APPC | |
| | MU | Rs. Crore | Rs/kWh | MU | Rs. Crore | Rs/kWh | |
| TPC-G | 295.32 | 131.63 | 4.46 | 269.26 | 121.19 | 4.50 | APPC marginally higher due to subsequent lower generation, results in higher fixed cost per unit |
| RE Sources# | 58.96 | 25.62 | 4.34 | 18.28 | 16.22 | 8.87 | Higher APPC mainly due to REC purchase cost and absence of RE power from new envisaged sources |
| Bilateral@ | 44.08 | 12.63 | 2.87 | 20.23 | 6.24 | 3.08 | Prices as per power exchange and bilateral contract |
| Others# | - | - | - | 18.87 | 6.57 | 3.48 | Includes UI and OLA Sale |
| Total | 398.36 | 169.88 | 4.26 | 326.64 | 150.21 | 4.60 | |

| Particulars | Approved** for October, 2019 | | | Actual for March, 2020 | | | Remarks |
|-------------|------------------------------|-----------|--------|------------------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------|
| | Net Purchase | Cost | APPC | Net Purchase | Cost | APPC | |
| | MU | Rs. Crore | Rs/kWh | MU | Rs. Crore | Rs/kWh | |
| TPC-G | 295.32 | 131.63 | 4.46 | 287.32 | 128.42 | 4.47 | APPC is marginally higher due to lower PLF/(fixed charge impact), relatively higher share of power from costly gas Unit |
| RE Sources# | 58.96 | 25.62 | 4.34 | 20.38 | 13.27 | 6.51 | Higher APPC mainly due to REC purchase cost and absence of RE power from new envisaged sources |
| Bilateral @ | 44.08 | 12.63 | 2.87 | 9.96 | 2.80 | 2.81 | Prices as per power exchange and bilateral contract |



| Particulars | Approved** for October, 2019 | | | Actual for March, 2020 | | | |
|--------------|------------------------------|---------------|-------------|------------------------|---------------|-------------|--------------------------|
| | Net Purchase | Cost | APPC | Net Purchase | Cost | APPC | |
| | MU | Rs. Crore | Rs/kWh | MU | Rs. Crore | Rs/kWh | |
| Others* | - | - | - | 23.80 | 8.30 | 3.49 | Includes UI and OLA Sale |
| Total | 398.36 | 169.88 | 4.26 | 341.47 | 152.79 | 4.48 | |

*Others include UI/OLA Sale- Pl. refer para.4.42 to 4.46 below.

the rates of the RE sources include the cost of REC which were not considered in the MTR Order. Also, there is absence of new cheaper RE sources which was envisaged under the MTR Order. Pl. refer para. 4.36 to 4.39 below.

@ The Commission approved the ceiling rate to Rs. 5 per Unit in a subsequent Order in December, 2018. Pl. refer para.4.41 below.

**In case TPC-D, the power purchase quantum and cost is approved on annual basis. The monthly quantum and cost has been arrived based on yearly approved numbers for comparison purpose.

- 4.4 The Commission has scrutinised detailed bills/invoices for all of the power purchase sources in order to verify the claim of TPC-D with regards to average power purchase cost for the months of January, 2020 to March, 2020. The Commission has verified the Net Purchase, Variable Cost, Fixed Charge and the Power Purchase Cost from the relevant bills/invoices received for all purchasing sources.

TPC-G

- 4.5 TPC-G operates thermal as well as hydro generating stations. The thermal generating station of TPC-G are placed in MoD stack by MSLDC, whereas the hydro generating stations are considered as must run. **TPC-D has purchased total 303.58 MUs, 269.26 MUs and 287.32 MUs of power from TPC-G during the months of January, February and March, 2020, respectively as compared to 295.32 MUs approved in MTR Order.** The reason for monthly variation in power purchase quantum during Q4 period is mainly due to variation in PLF of various generating stations of TPC-G. The Table below shows the monthly/Quarterly Plant Availability Factor (PAF) vis-à-vis Plant Load Factor (PLF) of its thermal generating stations during Q4 of FY 2019-20:



| Months | Unit 5 (Multi-fired) | | Unit 7 (Gas) | | Unit 8 (Coal) | |
|------------------|----------------------|---------------|---------------|---------------|---------------|---------------|
| | PAF (%) | PLF (%) | PAF (%) | PLF (%) | PAF (%) | PLF (%) |
| Jan-20 | 100.00% | 77.33% | 87.40% | 49.84% | 100.00% | 85.12% |
| Feb-20 | 99.16% | 75.95% | 17.34*% | 16.14*% | 99.89% | 81.38% |
| Mar-20 | 98.52% | 67.07% | 100.00% | 65.86% | 99.51% | 74.82% |
| Quarterly | 99.40% | 73.40% | 69.44% | 44.56% | 100% | 80.42% |

**lower due to annual planned outage*

- 4.6 From the above Table, it can be seen that the actual PLF of thermal generating stations of TPC-G during Q4 period was lower than the normative value of 85% except for Unit 8 in the month of January, 2020. In response to clarification sought against such lower PLF, TPC-G has stated that **PLF of unit 5 and 8 was lower due to low system demand. Further, the lower PLF of Unit-7 (Gas) mainly during the month of February, 2020 was on account of annual planned outage of the said Unit.**
- 4.7 Also, from the above Table, it was observed that, although the PLF was lower during aforesaid period, the availability of generating stations was seen above normative except for Unit 7 during the month of February, 2020. In this regard, the Commission has asked TPC-D to confirm whether it has fully utilised availability declared by TPC-G during Q4 period. TPC-D was also sought to confirm if MoD principle has been followed while scheduling the power. In response to above query, TPC-D confirmed that it has fully utilised declared availability of all of its sources as per MoD principles during Q4 of FY 2019-20. Further, the variation between PAF and PLF of TPC-G's Units are mainly due to backing down of TPC-G Units as per MoD principles.
- 4.8 Further, with regard to MoD principle, TPC-D replied that the State Merit Order Despatch (MOD) is run by State Load Despatch Centre (SLDC) and TPC-D gets the drawl schedules, accordingly from SLDC. TPC-D has followed such schedule provided by SLDC during the months of January 2020, February 2020 and March, 2020. In this regard the Commission asked to provide the details of Plant-wise generation schedule given by MSLDC vis-à-vis actual generation achieved by TPC-G during the Q4 period, the same is as provided below:

| Units | January, 2020 | | February, 2020 | | March, 2020 | |
|--------|----------------------------|-------------------------|----------------------------|-------------------------|----------------------------|-------------------------|
| | Scheduled Generation (MUs) | Actual Generation (MUs) | Scheduled Generation (MUs) | Actual Generation (MUs) | Scheduled Generation (MUs) | Actual Generation (MUs) |
| Unit-5 | 280.13 | 271.70 | 255.26 | 250.42 | 246.33 | 234.73 |
| Unit-7 | 64.58 | 64.23 | 19.06 | 19.30 | 81.93 | 85.03 |
| Unit-8 | 150.00 | 148.90 | 136.52 | 133.01 | 138.35 | 130.47 |
| Hydro | 116.28 | 102.82 | 125.15 | 118.27 | 112.62 | 108.33 |



| Units | January, 2020 | | February, 2020 | | March, 2020 | |
|--------------------|----------------------------|-------------------------|----------------------------|-------------------------|----------------------------|-------------------------|
| | Scheduled Generation (MUs) | Actual Generation (MUs) | Scheduled Generation (MUs) | Actual Generation (MUs) | Scheduled Generation (MUs) | Actual Generation (MUs) |
| Total TPC-G | 610.99 | 587.65 | 535.99 | 521.00 | 579.23 | 558.56 |

4.9 From the above Table it can be seen that, as against the total schedule of 1,726.21 MUs (610.99 MUs + 535.99 MUs + 579.23 MUs) given during Q4 period, actual generation achieved by TPC-G is 1,667.21 MUs, reflecting an overall deviation of (3.42)%. The reasons for above deviation is provided below:

- a) **The generation of Unit-5 was lower than the scheduled generation due to auxiliary issues such as coal mill tripping and low condenser vacuum.**
- b) **The generation of Unit-5 and Unit-8 was lower in the month of March, 2020 as the generation was dropped below technical minimum in off peak hours due to lower demand of distribution licensees.**

4.10 Further, considering that the monthly fixed charge payment is based on the cumulative availability of plant as per Regulation 48.3 of MYT Regulations 2015, the Commission sought for month wise and cumulative availability declared by TPC-G for its various generating stations during the Q4 period. TPC-G has submitted the details as shown in Table below:

| | | | | | | |
|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Unit 5 (Thermal) | Oct-19 | Nov-19 | Dec-19 | Jan-20 | Feb-20 | Mar-20 |
| Monthly Availability | 97.91% | 100.0% | 100.0% | 100.00% | 99.16% | 98.52% |
| Cumulative Availability | 96.58% | 97.00% | 97.41% | 97.72% | 97.84% | 97.90% |
| Unit 7 (Thermal) | Oct-19 | Nov-19 | Dec-19 | Jan-20 | Feb-20 | Mar-20 |
| Monthly Availability | 99.02% | 100.0% | 100.0% | 87.40% | 17.34% | 100.00% |
| Cumulative Availability | 99.90% | 99.94% | 99.97% | 98.70% | 91.66% | 92.38% |
| Unit 8 (Thermal) | Oct-19 | Nov-19 | Dec-19 | Jan-20 | Feb-20 | Mar-20 |
| Monthly Availability | 89.72% | 81.48% | 2.34% | 100.00% | 99.89% | 99.51% |
| Cumulative Availability | 93.31% | 91.86% | 81.77% | 83.68% | 85.08% | 86.30% |
| Bhira (Hydro) | Oct-19 | Nov-19 | Dec-19 | Jan-20 | Feb-20 | Mar-20 |
| Monthly Availability | 100.0% | 100.0% | 100.0% | 100.00% | 100.00% | 100.00% |
| Cumulative Availability | 100.0% | 100.0% | 100.0% | 100.00% | 100.00% | 100.00% |
| Bhivpuri (Hydro) | Oct-19 | Nov-19 | Dec-19 | Jan-20 | Feb-20 | Mar-20 |
| Monthly Availability | 100.0% | 72.27% | 100.0% | 100.00% | 100.00% | 100.00% |
| Cumulative Availability | 99.70% | 96.33% | 96.74% | 97.07% | 97.33% | 97.55% |
| Khopoli (Hydro) | Oct-19 | Nov-19 | Dec-19 | Jan-20 | Feb-20 | Mar-20 |
| Monthly Availability | 100.0% | 81.11% | 98.92% | 100.00% | 100.00% | 100.00% |
| Cumulative Availability | 100.0% | 97.68% | 97.82% | 98.04% | 98.21% | 98.36% |

*Cumulative availability upto September, 2019 has been verified in previous post facto approvals



4.11 As it can be seen from the Table above, **the cumulative availability of all generating Units except Unit-8 (in the month of January, 2020) were above normative Target availability of 85%. Hence, full monthly fixed cost was payable to these Units in line with Regulation 48.3 of MYT Regulations 2015.** In case of Unit 8, the said unit is unavailable in the month of December, 2019 on account of annual planned outage. Due to this its cumulative availability for the month of January, 2020 has reduced. **Accordingly, the monthly fixed charge for Unit 8 was paid on pro rata basis for January, 2020.** The Commission has verified the fixed charge payment from the invoice submitted and found to be in order.

4.12 **The weighted average power purchase cost for TPC-G considering all its thermal and hydro generation has been worked out at Rs. 4.44/ kWh, Rs. 4.50/ kWh and Rs. 4.47/kWh for the months of January, February and March, 2020 respectively, as compared to MTR approved rate of Rs. 4.46/kWh.** The variation in power purchase price is mainly because of following reasons:

- **Due to variation in fuel parameters during Q4 period as compared to MTR approved parameters**
- **Due to the change in actual quantum from various sources as compared to MTR approved quantum**

Fuel parameter Analysis:

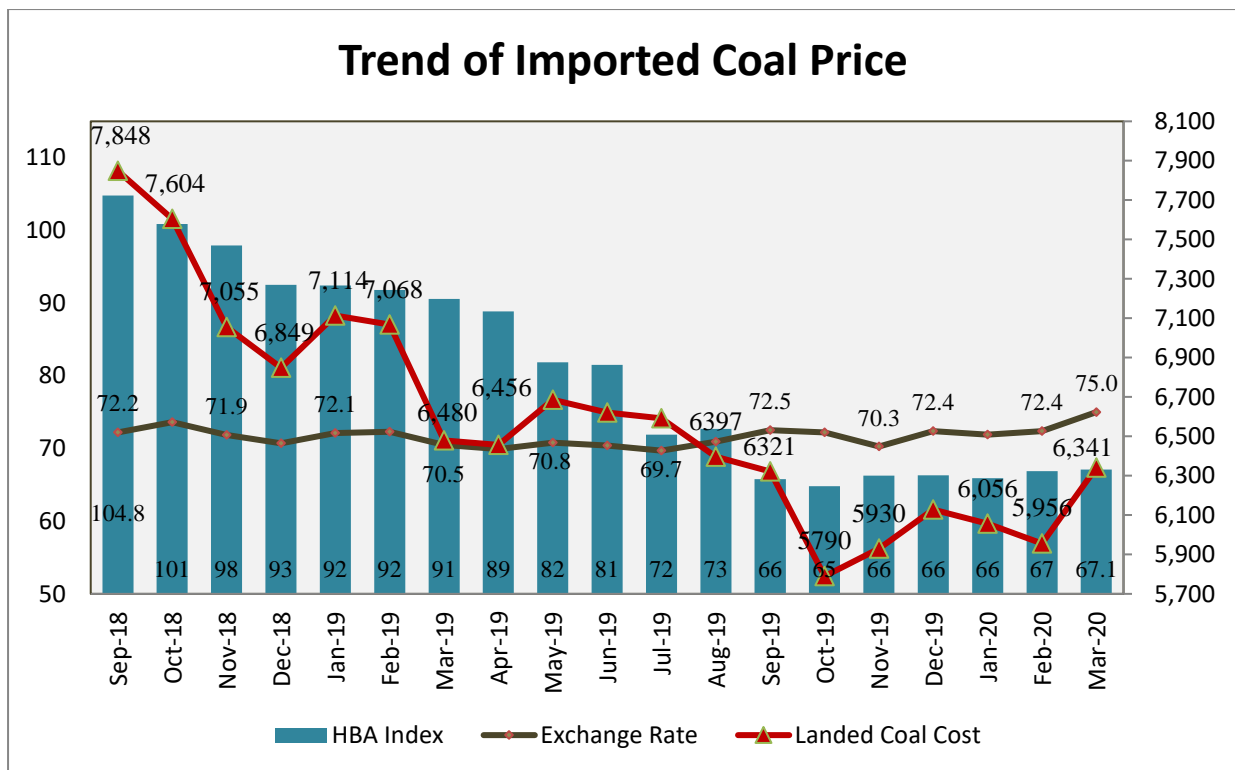
4.13 TPC-G generates power on Imported Coal, Domestic Natural Gas (under APM mechanism), Oil (LSHS), imported RLNG and Hydro. The Table below shows the comparison of actual energy charges vis-à-vis approved energy charges for thermal generating station.

| Units/ Months | Unit 5 (Multi-fired) | | Variation | Unit 7 (Gas) | | Variation | Unit 8 (Coal) | | Variation |
|------------------|-------------------------|--------|-----------|-----------------|--------|-----------|------------------|--------|-----------|
| | Approved | Actual | | Approved | Actual | | Approved | Actual | |
| Jan-20 | 3.99 | 3.45 | (0.54) | 1.80 | 2.56 | 0.76 | 3.94 | 3.43 | (0.51) |
| Feb-20 | 3.99 | 3.80 | (0.19) | 1.80 | 2.55 | 0.75 | 3.94 | 3.38 | (0.56) |
| Mar-20 | 3.99 | 3.61 | (0.38) | 1.80 | 2.56 | 0.76 | 3.94 | 3.62 | (0.32) |

4.14 The Commission observed that energy charge with respect to coal based generating stations was lower whereas for gas based generating station, it was higher during Q4 period as compared to respective MTR approved charges. The above variation in energy charges in thermal station is mainly due to variation in fuel prices during the respective period. The Commission has sought for fuel purchase bills during present quarter.



4.15 With regards to coal, TPC-G mainly procures imported coal from Indonesian market which is linked to Harga Batubara Acuan (HBA) index. The coal reference price, i.e., Harga Batubara Acuan or HBA index for Indonesian coal is set by Ministry of Energy and Mineral Resources (Indonesia). The Commission has asked TPC-G to confirm if the imported coal has been procured by TPC-G through competitive bidding along with documentary evidence. The Commission has also sought for prevailing HBA index during the aforesaid period along with the detailed computation of FOB price at which the coal has been procured by TPC-G. In response to above, TPC-G stated that it has procured imported coal through competitive bidding route and submitted the document vide its data gap reply. TPC-G has also provided the HBA indices prevailing during Q4 period. The Commission has observed that the HBA indices and hence, the price of imported coal in international market has shown downward trend as compared to price at the time of MTR Order when the HBA indices was very high (104.81 as shown in graph). This is mainly attributed to demand supply position of the global coal market. The graph below shows the trend of HBA indices vis-à-vis landed coal cost claimed by TPC-G from September 2018 to March, 2020.



4.16 From graph above, it can be observed that **the HBA index was at around 104.8 in September 2018 and has decreased to 67.1 in March, 2020.** Due to this the landed cost of coal and hence, energy charges during present quarter has been lower as compared to cost approved in MTR Order dated 12 September, 2018. **The landed cost of coal claimed**



by TPC-G is Rs. 6,056/MT, Rs. 5,956/MT and Rs. 6,341/MT for the months of January, February and March, 2020 as against the MTR approved rate of Rs. 7154/MT.

4.17 Further, the Commission has also scrutinised the sample bills provided in order to verify the landed cost of imported coal. The Table below provides the detailed computation of basic cost of imported cost for the month of February, 2020:

| Month | 02 Feb-20 | 04 Feb-20 | 16 Feb-20 | 29 Feb-20 | Remark |
|--------------------------|------------------|------------|----------------|----------------|-------------------------|
| Exchange Rate (\$ to Rs) | 71.51 | 71.14 | 71.39 | 72.19 | Verified from SAP Entry |
| Supplier | PT KIDECO JAYA A | PT ADARO | PT ADARO | PT KIDECO JAYA | Verified from Invoice |
| Vessel Name | OCEAN OPAL | SAGAR MOTI | CRIMSON KNIGHT | CL GEMMA | Verified from Invoice |
| HBA (\$/MT) | 66.89 | 66.89 | 66.89 | 66.89 | Submitted by TPC-G |
| Coal Qty (MT) | 79510.00 | 57914.00 | 57932.00 | 62679.00 | Verified from Invoice |
| GCV (kcal/kg) | 4942.00 | 4805.00 | 4820.00 | 4953.00 | Verified from Invoice |
| Moisture (%) | 24.99 | 29.39 | 28.96 | 24.41 | Verified from Invoice |
| Ash (%) | 3.32 | 1.64 | 1.51 | 3.18 | Verified from Invoice |
| Sulphur (%) | 0.09 | 0.11 | 0.09 | 0.08 | Verified from Invoice |
| FOB (USD/MT) | 50.14 | 47.12 | 47.62 | 50.67 | Verified from Invoice |
| FOB Rs /MT | 3585.49 | 3351.88 | 3399.43 | 3657.84 | Calculated |
| Avg Base Price Rs./MT | 3498.66 | | | | Calculated |

4.18 As from Table above the average basic cost of imported coal for the month of February, 2020 is Rs. 3,498.66/MT. The landed cost of imported coal is arrived by adding the freight charges, excise duty, custom duty, GST compensation cess, insurance and other handling charges. The Commission has sought TPC-G to provide the details of above expenses. TPC-G in its data gap reply submitted the details. Accordingly, the Commission has worked out the landed cost of imported coal on sample basis for the month of February as shown in Table below:

| Sr. No | Particular | Source/Formula | Units | Price |
|--------|---------------------------------------------|-------------------|---------|----------|
| 1 | Base price | As computed above | Rs./MT | 3,498.66 |
| 2 | Freight charges | As submitted | Rs./MT. | 741.02 |
| 3 | Excise + Custom Duty + C E Cess + insurance | As submitted | Rs./MT | 664.95 |
| 4 | Handling and wharfage | As submitted | Rs./MT | 550.88 |
| 5 | Other Fuel Handling Charges | As submitted | Rs./MT | 401.92 |



| Sr. No | Particular | Source/Formula | Units | Price |
|--------|-------------------|----------------|--------|----------|
| 6 | Total landed cost | | Rs./MT | 5,857.43 |

4.19 From the Table above, the landed cost of imported coal for the month of February, 2020 has been worked at Rs. 5,857.43/MT. However, the landed cost claimed by TPC-G in FAC computation for the month of February is Rs. 5956.42/MT. The variation is mainly due to reason that the cost claimed by TPC-G in FAC computation pertains to cost of coal consumed in respective period from the inventory/stocks whereas, the cost as calculated above pertains to recent purchase cost, hence, it does not match exactly. Further, the cost claimed in FAC computation is based on the weighted average cost of the total coal purchase available at the coal stock. Therefore, there is a variation in the between the cost claimed by TPC-G and as computed by the Commission. **However, the sample calculations are found to be in similar range as submitted by TPC-G.**

4.20 Further, the Commission has also sought for third party sampling report for GCV verifications. **TPC-G has submitted the third-party sampling certificate issued by Mitra S.K. Private Limited for the respective period.** TPC-G also submitted the details of GCV as billed at loading end, as received at unloading end and as used for energy charge computation as shown in Table below:

| Months | Wt Avg GCV as billed at loading port (kCal/kg) | Wt Avg GCV as received at unloading port (kCal/kg) | Wt Avg GCV used for energy charges (kCal/kg) | Remark |
|--------|------------------------------------------------|----------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Jan-20 | 4,917 | 4,910 | 4,760 | <i>GCV for energy charge = GCV as received – stacking loss (Max. 150 kcal/kg) as per Regulations 48.5 of MYT Regulations, 2015</i> |
| Feb-20 | 4,884 | 4,896 | 4,746 | |
| Mar-20 | 4,918 | 4,873 | 4,723 | |

4.21 With regards to higher gas price and hence, energy charges for gas generating station, TPC-G stated that the actual energy charge is higher than approved energy charge due to following reasons:

- **Revised ONGC differential tariff which has increased from Rs. 5.7/MMBTU to Rs. 34.73/MMBTU.**
- **Transportation Charges got revised from Rs. 1.04 /MMBTU to Rs 25.15 /MMBTU with effect from 1st July, 2019**



- The basic cost of the APM gas has also increased from USD 3.06 / MMBTU (as considered in MTR Order) prevailing during the month of April 2018 to USD 3.23/ MMBTU in the Q4 FY 2019-20.

4.22 TPC-G has submitted the sample gas bills issued by GAIL showing the above revised rate and the same has been verified.

4.23 Based on above, considering the downward price of imported coal and the upward price of APM Gas, the net impact of FAC has been worked out for respective months, as shown in Table below:

| Particulars for January, 2020 | Units | Unit 5 | Unit 7 | Unit 8 | Impact |
|--------------------------------|------------------|---------------|-------------|---------------|---------------|
| Energy Available to TPC-D | MUs | 132.67 | 31.36 | 89.34 | |
| Approved Energy Charge | Rs./kWh | 3.99 | 1.80 | 3.94 | |
| Actual Energy Charge | Rs./kWh | 3.45 | 2.56 | 3.43 | |
| Fuel Surcharge Adjustment | Rs./kWh | (0.54) | 0.76 | (0.51) | |
| Recoverable through FAC | Rs. Crore | (7.11) | 2.38 | (4.57) | (9.29) |

| Particulars for February, 2020 | Units | Unit 5 | Unit 7 | Unit 8 | Impact |
|--------------------------------|------------------|---------------|-------------|---------------|----------------|
| Energy Available to TPC-D | MUs | 122.28 | 9.43 | 79.80 | |
| Approved Energy Charge | Rs./kWh | 3.99 | 1.80 | 3.94 | |
| Actual Energy Charge | Rs./kWh | 3.38 | 2.55 | 3.38 | |
| Fuel Surcharge Adjustment | Rs./kWh | (0.61) | 0.75 | (0.56) | |
| Recoverable through FAC | Rs. Crore | (7.42) | 0.71 | (4.45) | (11.17) |

| Particulars for March, 2020 | Units | Unit 5 | Unit 7 | Unit 8 | Impact |
|--------------------------------|------------------|---------------|-------------|---------------|---------------|
| Energy Available to TPC-D | MUs | 114.62 | 41.52 | 78.28 | |
| Approved Energy Charge | Rs./kWh | 3.99 | 1.80 | 3.94 | |
| Actual Energy Charge | Rs./kWh | 3.61 | 2.56 | 3.62 | |
| Fuel Surcharge Adjustment | Rs./kWh | (0.38) | 0.76 | (0.33) | |
| Recoverable through FAC | Rs. Crore | (4.33) | 3.14 | (2.56) | (3.75) |

4.24 As can be seen from above, the net impact of change in fuel prices (i.e., increase in gas price and decrease in coal price) is negative in all the months of Q4, FY2020, i.e., refund of around Rs. (9.29) Crore in, January 2020, Rs. (11.17) Crore in February, 2020 and Rs. (3.75) Crore in March, 2020. This has resulted into lowering of variable charge and thus total power purchase cost during respective period.



4.25 Further, with regard to hydro stations, the approved energy charges as per MTR Order is Rs. 0.75/kWh for Bhira, Rs. 1.90/kWh for Bhivpuri and Rs. 3.06/kWh for Khopoli. However, as against the aforesaid approved energy charges, it was observed that **for Bhivpuri and Khopoli hydro stations, TPC-G has claimed energy charges of Rs. 0.90/kWh only.**

4.26 In reply to the data gap TPC-D clarified that the cumulative net generation of Bhivpuri and Khopoli hydro stations had exceeded net design energy for these stations during the month of Q4, FY2020 as shown in Table below:

| Name of Hydro Stations | January-20 | | February-20 | | March-20 | |
|------------------------|-------------------------|---------------------------------|-------------------------|---------------------------------|-------------------------|---------------------------------|
| | Net Design Energy (MUs) | Cumulative Net Generation (MUs) | Net Design Energy (MUs) | Cumulative Net Generation (MUs) | Net Design Energy (MUs) | Cumulative Net Generation (MUs) |
| Khopoli | 171.97 | 274.02 | 171.97 | 301.04 | 171.97 | 324.14 |
| Bhivpuri | 190.23 | 264.15 | 190.23 | 300.84 | 190.23 | 338.44 |

4.27 TPC-D has further clarified that the as per Regulation 49.8 of MYT Regulations, 2015 the energy charge rate for hydro generating station to be computed as follows in case actual energy exceeds ninety paise per kWh.

“49.8 In case the Energy Charge Rate (ECR) for a Hydro Generating Station, as computed in Regulation 49.6, exceeds ninety paise per kWh, and the actual saleable energy in a Year exceeds { DE x (1 – AUX) } kWh, the Energy Charge for the energy in excess of the above shall be billed at ninety (90) paise per kWh only”

4.28 **Hence, in line with the above-mentioned Regulation, the energy charge for the Hydro stations are worked out, which is lower than the approved Tariff.** Accordingly, the reduction in energy charge of hydro stations has further contributed to the reduction in power purchase cost for all the months of Q4 of FY 2020. **However, due to overall lower PLF/Generation (mainly from Thermal Units) in the month of February and March, 2020, the fixed charge burden has increased which has impacted the APPC during aforesaid months with the actual APPC being lesser as compared to approved APPC by approx. Rs. (0.02)/kWh for January 2020 and higher by approx. Rs. 0.04/kWh and Rs. 0.01/kWh in February and March 2020.**

Renewable Purchase (RE Power):



- 4.29 In order to meet its RPO requirement, TPC-D has procured RE Power from its long term tied up RE sources (solar RE sources and non-solar RE sources). The balance requirement towards RPO target has been met through REC purchase. For solar power, TPC-D has long term agreement with Mulshi Solar Plant, Palaswadi and Carnac roof top. For non-solar power, TPC-D has long term contract with wind generators such as Khandke, Bramhanvel, Sadawaghapur, Visapur, Agaswadi. Tata Power-D is procuring solar as well as non-solar power at a generic tariff approved by the Commission.
- 4.30 During the present quarter, TPC-D has purchased 4.18 MUs, 4.05 MUs and 4.70 MUs of solar power from existing solar sources at a rate of Rs. 9.69/kWh, Rs. 9.68/kWh and Rs. 9.85/kWh in the month of January, February and March, 2020, respectively, against the MTR approved rate of Rs. 9.81/kWh applicable for existing solar tied up sources.
- 4.31 For its non-solar RPO target, TPC-D has purchased 12.55 MUs, 14.23 MUs and 15.69 MUs of non-solar power at a rate of Rs. 5.10/kWh, Rs. 5.09/kWh and Rs. 5.02/kWh in the month of January, February and March, 2020, respectively as against the MTR approved rate of Rs. 5.06/kWh applicable for existing non-solar tied up sources.
- 4.32 Based on above purchase (solar and non-solar power), the total RE power procured by TPC-D stands at 16.73 MUs, 18.28 MUs and 20.38 MUs for the month of January, February and March, 2020, respectively. The weighted average price for the above specified RE purchase works out at Rs. 6.25/kWh, Rs. 6.11/kWh and Rs. 6.14/kWh during the months of January, February and March, 2020 as compared to MTR approved weighted average price of Rs. 5.67/kWh from existing solar and non-solar sources.**
- 4.33 In addition to the above RE power purchase, TPC-D has also purchased Solar and Non-Solar REC to achieve its RPO target. **TPC-D has procured RECs of worth Rs. 0.17 Crores in the month of January 2020, RECs of worth Rs. 5.05 Crore in the month of February, 2020 and RECs of worth Rs. 0.77 Crore in the month of March, 2020 to fulfil the RPO obligations.** Accordingly, considering the RE (solar and non-solar) purchase cost and also the REC purchase cost, **the overall weighted average price of RE power inclusive of REC cost stands at Rs. 6.35/kWh, Rs. 8.87/kWh and Rs. 6.51/kWh, for months of January, February and March, 2020 respectively, as compared to MTR approved rate of Rs .4.34/kWh.**
- 4.34 The Table below shows the comparison of actual RE power purchase vis-à-vis approved during the Q4 of FY 2019-20:



| Particular | As approved in MTR Order | | | Actual for Jan, 2020 | | |
|---------------------------|--------------------------|---------------------|----------------|----------------------|---------------------|----------------|
| | Quantum (MUs) | Power Purchase Cost | Rate (Rs./kWh) | Quantum (MUs) | Power Purchase Cost | Rate (Rs./kWh) |
| Solar Sources: | | | | | | |
| Existing Sources | 47.4 | 46.58 | 9.81 | 4.18 | 4.05 | 9.69 |
| New Solar | 119.91 | 32.62 | 2.72* | - | - | - |
| Non-Solar Sources: | | | | | | |
| Existing Sources | 322.21 | 162.98 | 5.06 | 12.55 | 6.40 | 5.10 |
| New Non- Solar (MU) | 208.4 | 59.81 | 2.87* | - | - | - |
| Mini/Micro Hydro Purchase | 9.56 | 5.39 | 5.64* | - | - | - |
| Total RE Power | 707.48 | 307.38 | 4.34 | 16.73 | 10.45 | 6.25 |
| REC Solar | - | - | - | - | 0.17 | - |
| REC Non-solar | - | - | - | - | - | - |
| Total RE Power | 707.48 | 307.38 | 4.34 | 16.73 | 10.62 | 6.35 |

*Generic Tariff solar and non-solar Tariff as considered in MTR Order

| Particular | Actual for February, 2020 | | | Actual for March, 2020 | | |
|---------------------------|---------------------------|---------------------|----------------|------------------------|---------------------|----------------|
| | Quantum (MUs) | Power Purchase Cost | Rate (Rs./kWh) | Quantum (MUs) | Power Purchase Cost | Rate (Rs./kWh) |
| Solar Sources: | | | | | | |
| Existing Sources | 4.05 | 3.92 | 9.68 | 4.69 | 4.62 | 9.85 |
| New Solar | - | - | - | - | - | - |
| Non-Solar Sources: | | | | | | |
| Existing Sources | 14.23 | 7.24 | 5.09 | 15.69 | 7.88 | 5.02 |
| New Non- Solar (MU) | - | - | - | - | - | - |
| Mini/Micro Hydro Purchase | - | - | - | - | - | - |
| Total RE Power | 18.28 | 11.16 | 6.11 | 20.38 | 12.51 | 6.14 |
| REC Solar | - | 0.27 | - | - | 0.32 | - |
| REC Non-solar | - | 4.78 | - | - | 0.44 | - |
| Total RE Power | 18.28 | 16.22 | 8.87 | 20.38 | 13.27 | 6.51 |

4.35 It can be observed from the above Table that even though TPC-D has procured RE power at a generic Tariff approved by the Commission, the overall APPC is still appearing higher than the MTR approved rate of Rs. 4.34/kWh. The increase in APPC is mainly due to following reasons:



- **Due to the change in actual quantum of power (% share) from various sources, there is a change in the weighted average rate of purchase from Solar RE and Non-Solar RE sources.**
- **Due to the absence of new cheaper RE sources in the total purchase portfolio as envisaged by the Commission while determining the price for FY 2019-20 in its MTR Order.**
- **Due to additional purchase of REC by TPC-D during the respective period in order to fulfil its RPO Obligation of the year.**

4.36 It is to be noted that the Commission in its MTR Order dated 12 September, 2018, has arrived at APPC from RE sources as Rs. 4.34/kWh considering existing and new generators. While arriving this APPC, the weighted average purchase cost for existing solar sources was taken as Rs.9.81/kWh and for existing non-solar it was considered as Rs.5.06/kWh. The balance requirement of Solar and Non-Solar RPO target was considered to be met through new RE sources considering the average price as Rs.2.72/kWh for Solar, Rs.2.87/kWh for Non-Solar and Rs.5.64/kWh for micro/mini hydro purchase. Further, TPC-D was directed to explore new cheap RE sources to fulfil its RPO target, accordingly no REC purchase had been considered in while approving APPC for FY 2019-20. Based on above the weighted average cost of power purchase had been worked out as Rs.4.34/kWh for FY 2019-20 in the MTR Order.

4.37 As against the above, in actual TPC-D has procured RE power from existing tied up sources only and there was no RE purchase from new cheaper sources as envisaged in MTR Order. On response to clarification sought with regards to absence of new cheaper RE sources, in its replies to the data gaps for Q1 FAC, TPC-D had submitted the other efforts taken by it to tie up cheaper RE power and had stated that it had explored option to tie-up on Generic tariff by approaching few Developers who were winning bidders in MSEDCL's tendering process, however considering the short timeline for CoD from August 2018 to March 2019, Tariff period of 13 years & safeguard duty issue, developers were not inclined to tie-up with the terms & conditions as per Generic tariff. TPC-D further stated that, it had put up the proposal in front of the Commission through a Petition in Case No. 136 of 2019 dated 6 June, 2019, to procure 150 MW solar power from grid connected solar PV power projects through Competitive Bidding Process. The Commission had issued an Order in this matter on 2 August, 2019 in which the Commission has accorded an approval for procurement of 150 MW Solar power from grid connected Solar PV projects for a PPA period of 25 years through Competitive Bidding process. Accordingly, TPC- D floated a tender on 21 August, 2019 on MSTC's e-bidding 'DEEP Portal' to procure cumulative 150 MW Solar Power from grid connected solar photovoltaic project on long term basis for a period of 25 years. TPREL was declared as successful Bidder after completion of the Bidding process.



Subsequently, TPC-D had filed a Petition for Adoption of Tariff and through the Order dated 4 December, 2019 in Case No. 292 of 2019, the Commission has accorded approval for procurement of 150 MW on long term basis from grid connected Solar power project for Rs. 2.83/kWh for 25 Years. Subsequent to this Order, TPC-D signed a PPA on 3 January 2020. Considering the timelines of this process, the project is scheduled to achieve commercial operation in FY 2021-22.

- 4.38 Regarding purchase of REC, TPC-D stated that MERC RPO Regulations, 2016 allows Distribution Licensees and other Obligated Entities to meet their RPO by purchasing REC. The relevant provision of MERC (RPO-REC) Regulations, 2016 is reproduced below;

“Every 'Obligated Entity' may meet its RPO target by way of own generation or procurement of power from RE developer or by way of purchase from other licensee or by way of purchase of renewable energy certificate or by way of combination of any of the above options.”

- 4.39 Hence, to meet short shortfall in RPO target TPC-D has purchased REC during Q4 of FY 2019-20. **TPC-D has submitted the RE certificate and obligation report issued by IEX and the same has been verified.**

Bilateral Sources/Traders:

- 4.40 **TPC-D has purchased bilateral power of 6.49 MUs, 20.23 MUs and 9.96 MUs during the months of January, February and March, 2020, respectively.** The aforesaid bilateral power has been procured from traders/power exchange **at an average price of Rs. 2.84/kWh, Rs. 3.08/kWh and Rs. 2.80/kWh, during respective period, as compared to MTR approved rate of Rs. 2.87/kWh.** TPC-D vide its data gap reply clarified that the bilateral power was available at a cheaper price than the contracted sources. Hence, for cost optimisation it has procured bilateral power.

- 4.41 Also, it is to be noted that **the Commission in its Order in Case No. 319 of 2018 dated 3 December, 2018 has increased the ceiling rate for purchase of short-term power to Rs. 5.00/kWh for FY 2018-19 and FY 2019-20.** Considering that the actual bilateral power purchase rate is within the revised ceiling approved by the Commission, the same has been considered as submitted by TPC-D.

UI and OLA Sale:

- 4.42 It was observed that **TPC-D has considered Unscheduled Interchange (UI) power of 2.29 MUs, 19.28 MUs and 24.07 MUs at a price of Rs. 3.50/kWh during the month of January, February, and March, 2020 respectively.** The Commission has sought for supporting invoices/bills for UI purchase. In response TPC-D stated that UI is a balancing



figure between the InSTS requirement of TPC-D and total power purchase of TPC-D for a particular month. The bills/invoices of UI for the period January to March, 2019 can be provided once provisional bill settlement of UI is completed. At present, TPC-D has considered UI price at provisional basis.

- 4.43 TPC-D has consumed UI power during Q4 period which is mainly due to backing down of TPC-G generating stations as per State-wide MoD run by MSLDC. TPC-G's generating Stations with which TPC-D has long term contracts are at a higher position in the Merit Order Stack. Hence, depending on the State demand these generators are backed down. As per the procedure laid down by the Commission the requirement against backed down generation get fulfilled by the pool power. Hence, UI power is consumed during Q4 period.
- 4.44 Since UI rates are normally lower as compared to other sources of power, consideration of the same reduces the average power purchase cost, thus, reducing FAC burden on consumers. Therefore, in line with approach adopted in earlier FAC approval, the Commission has considered imbalance power purchase quantum as well as the cost on provisional basis as submitted by TPC-D. However, Utility is requested to expedite the UI settlement process and submit the actual bills with adjustments, if any, promptly. Further, it is to clarify that TPC-D should not treat the Imbalance Pool mechanism as a source of procuring power. It is only meant for settling the deviations in the real-time power interchange between various pool participants. Therefore, TPC-D is required to carry out due diligence of its Power procurement plans in such a way to minimise quantum of purchase from Imbalance Pool.
- 4.45 With regards to **Outside Licence Area (OLA) or surplus sale, it was observed that TPC-D has sold 0.83 MUs of power during Q4 of FY 2019-20, resulted in revenue of Rs. 0.40 Crore. Revenue earned from OLA sale has been considered in reduction of power purchase cost during the respective period.** In response to details sought for OLA sale, TPC-D replied that there was no exchange sale in Q4 FY 2019-20 and surplus power has been sold to NIDAR Utilities (NUPLLP), Panvel as per approved Power Purchase Agreement (PPA) vide MERC Order dated 3 August, 2018 in Case no. 117 of 2017.
- 4.46 The average rate of OLA sale is Rs. 4.84/kWh, which is higher than the average rate of power purchase by TPC-D. Further, the Commission has observed that the price of surplus sale is also higher than the average Market Clearing Price (MCP) at IEX (i.e., Rs. 2.74/kWh) during respective period. The sale of surplus power is observed at a rate higher than these MCP rates. Accordingly, the OLA sale is considered as submitted by TPC-D.

Standby Power:



4.47 Further, it was observed **that TPC-D had purchased 0.63 MUs of Standby power at a cost of Rs. 0.25 Crore during the month of January, 2020.** On response to clarification sought for aforesaid purchase, TPC-D stated that, it had procured aforesaid Standby Power from MSEDCL due to outage of Unit-7 of Trombay Generating Station and Bhira Power Stations (BPSU). TPC-D also replied that the power from all the contracted sources was fully utilised before scheduling the above-mentioned standby power. The details related to emergency outages is as provided by TPC-G is shown below:

| Unit/Station | Outage dates | Standby Power purchased |
|---------------------|------------------|-------------------------|
| Unit-7 & Bhira-BPSU | 13 January, 2020 | 0.39 MUs |
| | 14 January, 2020 | 0.24 MUs |

4.48 With reference to the price of Standby power purchase, TPC-D clarified that it is yet to receive final bills for the power purchase from MSEDCL. However, for the purpose of booking power purchase cost it has provisionally considered the price of Rs. 3.90/kWh which is lower than the per unit average power purchase cost approved (Rs. 4.27/kWh) for TPC-D in MTR Order. Further, the Commission in its recent MYT Order has also approved the Standby Charges as submitted by TPC-D during provisional truing of FY 2019-20. In view of above, the Commission has considered the Standby Charges in Q4 of FY 2019-20. However, TPC-D is required to submit the detailed reconciliation of Standby Charges on the basis of final bills at the time of final truing of FY 2019-20

4.49 Based on above, on an overall basis **the key reason for variation in APPC is due to variation in fuel prices, impact of full monthly fixed charge payment of TPC-G over lower net generation due to lower PLF, absence of new cheaper sources of power in total RE portfolio, additional purchase of REC to fulfil RPO, etc.** Accordingly, the Commission allows the average power purchase cost of **Rs. 4.50/kWh** for the month of January, 2020, **Rs. 4.60/kWh** for the month of February, 2020 and **Rs. 4.48/kWh** for the month of March, 2020 as compared to MTR approved price of **Rs. 4.26/kWh**.

Yearly Power Purchase Summary:

4.50 As the FY 2019-20 is over, the Commission has sought for the detailed comparison of actual overall power purchase during FY 2019-20 vis-à-vis the power purchase as approved in MTR Order for FY 2019-20. Table below shows the Annual power purchase by TPC- D, during FY 2019-20 against the power purchase approved by the Commission in MTR:



| Particular | Approved for FY 2019-20 | | | Actual for FY 2019-20 | | | Variation | | |
|----------------------|-------------------------|--------------------------------|----------------|-----------------------|--------------------------------|----------------|----------------|--------------------------------|----------------|
| | Quantum (MUs) | Power Purchase cost (Rs Crore) | APPC (Rs./kWh) | Quantum (MUs) | Power Purchase cost (Rs Crore) | APPC (Rs./kWh) | Quantum (MUs) | Power Purchase cost (Rs Crore) | APPC (Rs./kWh) |
| TPC-G | 3543.84 | 1579.60 | 4.46 | 3619.75 | 1594.28 | 4.40 | 75.91 | 14.68 | (0.06) |
| Non-Solar RE Sources | 540.17 | 228.19 | 4.22 | 315.96 | 159.76 | 5.06 | (224.2) | (68.43) | 0.84 |
| Solar RE Sources | 167.31 | 79.19 | 4.73 | 46.61 | 44.57 | 9.56 | (120.7) | (34.62) | 4.83 |
| REC | - | - | - | - | 42.49 | - | - | 42.49 | - |
| Bilateral | 528.95 | 151.57 | 2.87 | 468.34 | 158.27 | 3.38 | (60.61) | 6.70 | 0.51 |
| Stand by Power | - | - | - | 8.75 | 3.53 | 4.02 | 8.75 | 3.53 | 4.02 |
| UI | - | - | - | 313.20 | 109.64 | 3.50 | 313.20 | 109.64 | 3.50 |
| OLA Sale | - | - | - | (23.39) | (10.32) | 4.41 | (23.39) | (10.32) | 4.41 |
| Total | 4780.27 | 2038.55 | 4.26 | 4749.27 | 2102.21 | 4.43 | (31.00) | 63.66 | 0.17 |

4.51 TPC-D vide its data gap reply has provided the reasons for source-wise variation in actual power purchase cost as compared to approved cost. The same has been provided paras below:

- a. **Non-Solar & Solar RE Sources:** While arriving at approved tariff of RE power purchase, the Commission in MTR Order had taken into account additional power procurement from new cheaper RE generators. However, due to absence of new cheaper RE sources, APPC of the RE power has resulted higher than the approved average cost (refer para 4.36). Further, in order to meet shortfall in RPO target, TPC-D had procured REC during FY 2019-20, which has resulted in additional cost of Rs. 42.49 Crore. This has also impacted the overall power purchase cost.
- b. **Bilateral Power:** With regard to bilateral power the Commission had approved price for bilateral power purchase as Rs. 2.87/kWh in its MTR Order for FY2019-20. However, the same was revised to Rs. 5.00/kWh vide Order in Case No. 319 of 2018 dated 3 December, 2018 for FY 2018-19 and FY 2019-20. The extract of the order has been reproduced below:

“69. However, the Commission appreciates the practical difficulty being faced by TPC-D, as the actual short-term rates discovered through competitive bidding on DEEP Portal are higher than the ceiling rate of Rs. 2.87/kWh approved by the Commission in the MTR Order, necessitating filing of several Petitions for obtaining separate approval for each such transaction. Hence, the Commission hereby increases the ceiling rate for purchase of short-term power to Rs. 5.00/kWh for FY 2018-19 and FY 2019-20.”



Accordingly, TPC-D has procured the bilateral power at an average price of Rs.3.38/kWh, which is lower than the revised limit of Rs. 5.00/kWh, but higher than the average price approved in MTR Order.

- c. **Stand by Power:** TPC- D has procured 8.75 MUs standby power at a cost of Rs. 3.53 Crore from MSEDCL due to outage of contracted capacity. During the approval of power purchase in MTR Order, no quantum and cost had been approved by the Commission. However, the standby power has been procured in accordance with standby arrangement with MSEDCL.

5. FAC on account of fuel and power purchase cost (F)

5.1 The Commission has worked out the average power purchase cost for the months of Q4 FY2020. The same has been compared with the average power purchase cost approved by the Commission in Tariff Orders dated 12 September, 2018 and arrived at differential per unit rate at which ZFAC is to be passed on to the consumers.

5.2 The following Table shows the ZFAC worked out by the Commission on account of difference in fuel and power purchase cost for the month of January, 2020 to March, 2020:

| S. No. | Particulars | Units | Jan, 2020 | Feb, 2020 | Mar, 2020 |
|--------|-----------------------------------------------------------|------------------|-----------|-----------|-----------|
| 1 | Average power purchase cost approved by the Commission | Rs./kWh | 4.26 | 4.26 | 4.26 |
| 2 | Actual average power purchase cost | Rs./kWh | 4.50 | 4.60 | 4.47 |
| 3 | Change in average power purchase cost (=2 -1) | Rs./kWh | 0.23 | 0.33 | 0.21 |
| 4 | Net Power Purchase | MU | 329.43 | 326.64 | 341.47 |
| 5 | Change in fuel and power purchase cost (=3 x 4/10) | Rs. Crore | 7.63 | 10.91 | 7.17 |

6. Adjustment for over recovery/under recovery (B)

6.1 Adjustment factor for over recovery/under recovery (B) for the period of January, 2020 to March, 2020, the adjustment factor to be added/reduced is as below;

| S. No. | Particulars | Units | Jan, 2020 | Feb, 2020 | Mar, 2020 |
|--------|-------------------------------------------------------|-----------|-----------|-----------|-----------|
| 1.1 | Incremental cost allowed to be recovered in Month n-4 | Rs. Crore | 4.32* | (7.83)* | 9.31 |



| S. No. | Particulars | Units | Jan, 2020 | Feb, 2020 | Mar, 2020 |
|--------|-----------------------------------------------------------------------------------------------------------------------------|------------------|-----------|-----------|-----------|
| 1.2 | Incremental cost in Month n-4 actually recovered in month n-2 | Rs. Crore | 2.65 | (0.01) | (0.10) |
| 1.3 | (over-recovery)/under-recovery (=1.1 - 1.2) | Rs. Crore | 1.67 | (7.82) | 9.41 |
| 2.0 | Carried forward adjustment for over-recovery/under-recovery attributable to application of ceiling limit for previous month | Rs. Crore | | | |
| 3.0 | Adjustment factor for over-recovery/under-recovery (1.3+2.0) | Rs. Crore | 1.67 | (7.82) | 9.41 |

**Corrected as per previous post facto approval*

6.2 TPC-D in its submission had considered incremental cost allowed to be recovered for the month of January, 2020 and February, 2020 as Rs. 3.63 Crore and Zero, respectively. TPC-D had considered the above values as per its own computation of FAC pertaining to previous quarter of FY 2019-20. **However, the Commission in its post facto approval of previous quarter has rectified certain errors and had worked out incremental cost allowed to be recovered for the month of January, 2020 and February, 2020 as Rs. 4.32 and Rs. (7.83) Crore, respectively. The same has been considered in present FAC approval.**

7. Carrying Cost for over recovery/under recovery (B)

7.1 The following Table shows the month wise interest rate and amount worked out as Carrying cost for under/over recovery for the month of January, 2020 to March, 2020.

| S. No. | Particulars | Units | Jan, 2020 | Feb, 2020 | Mar, 2020 |
|--------|-------------------------------------------------------|------------------|-----------|-----------|-----------|
| 1 | Adjustment factor for over-recovery/under-recovery | Rs. Crore | 1.67 | (7.82) | 9.41 |
| 2 | Applicable Interest rate | % | 9.40% | 9.35% | 9.25% |
| 3 | Carrying cost for over-recovery/under-recovery | Rs. Crore | 0.01 | (0.06) | 0.07 |

8. Disallowance due to excess Distribution Loss

8.1 Regulation 10.8 of MYT Regulations, 2015 provides for FAC amount to be reduced in case the actual distribution loss for the month exceeds the approved distribution loss. The relevant extract is reproduced as follows.

“10.8The total ZFAC recoverable as per the formula specified above shall be recovered from the actual sales in terms of “Rupees per kilowatt-hour”:



Provided that, in case of unmetered consumers, the ZFAC shall be recoverable based on estimated sales to such consumers, computed in accordance with such methodology as may be stipulated by the Commission:

Provided further that, where the actual distribution losses of the Distribution Licensee exceed the level approved by the Commission, the amount of ZFAC corresponding to the excess distribution losses (in kWh terms) shall be deducted from the total ZFAC recoverable”

8.2 The following Table provides the comparison of approved and actual distribution loss and disallowance due to excess distribution loss if any.

| S.No. | Particulars | Units | Approved in Tariff Order | Cumulative | | |
|-------|--------------------------------------------------------------------------------------------------------|------------------|--------------------------|--------------|--------------|--------------|
| | | | | up to Jan-20 | up to Feb-20 | up to Mar-20 |
| 1 | Net Energy input at Distribution Voltages | MU | 2567.96 | 2441.64 | 2653.03 | 2849.75 |
| 2 | Energy sales (metered) at Distribution voltages | MU | 2541.77 | 2414.00 | 2616.53 | 2819.88 |
| 3 | Distribution Loss (=1-2) | MU | 26.190 | 27.64 | 36.50 | 29.87 |
| 4 | Distribution Loss as % of net energy input (=3/1) | % | 1.02% | 1.13% | 1.38% | 1.05% |
| 5 | Excess Distribution Loss = [Distribution Loss (4) - Distribution loss approved] x Net Energy Input (1) | MU | - | 0.313 | 0.962 | 0.073 |
| 6 | Disallowance of FAC due to excess Distribution Loss | Rs. Crore | - | 0.010 | 0.010 | 0.004 |

8.3 As seen from the above Table, cumulative distribution loss is 1.13% for the month of January 2020, 1.38% for the month of February, 2020 and 1.05% for the month of March, 2020. **The cumulative distribution losses were observed higher than the approved Distribution Loss of 1.02%. Accordingly, the excess distribution loss (MUs) and corresponding disallowance in FAC has been worked out as shown in Table above.**

9. Summary of Allowable ZFAC

9.1 The summary of the FAC amount as approved by the Commission for the month of January, 2020 to March, 2020 is as shown in the Table below:



| S. No. | Particulars | Units | Jan, 2020 | Feb, 2020 | Mar, 2020 |
|------------|---------------------------------------------------------------------------------------------------|------------------|-------------|-------------|--------------|
| 1.0 | Calculation of ZFAC | | | | |
| 1.1 | Change in cost of generation and power purchase attributable to Sales within the License Area (F) | Rs. Crore | 7.63 | 10.91 | 7.17 |
| 1.2 | Carrying cost for over-recovery/under-recovery (C) | Rs. Crore | 0.01 | -0.06 | 0.07 |
| 1.3 | Adjustment factor for over-recovery/under-recovery (B) | Rs. Crore | 1.67 | -7.82 | 9.40 |
| 1.4 | ZFAC = F+C+B | Rs. Crore | 9.31 | 3.04 | 16.65 |
| 2.0 | Calculation of FAC Charge | | | | |
| 2.1 | Energy Sales within the License Area | MU | 304.10 | 301.15 | 334.01 |
| 2.2 | Excess Distribution Loss | MU | 0.31 | 0.96 | 0.07 |
| 2.3 | ZFAC per kWh | Rs./kWh | 0.31 | 0.10 | 0.50 |
| 2.4 | Cap at 20% of variable component of tariff | Rs./kWh | 1.06 | 1.06 | 1.06 |
| 2.5 | FAC Charge allowable (Minimum of 2.3 and 2.4) | Rs./kWh | 0.31 | 0.10 | 0.50 |
| 3.0 | Recovery of FAC | | | | |
| 3.1 | Allowable FAC | Rs. Crore | 9.31 | 3.03 | 16.64 |
| 3.2 | FAC disallowed corresponding to excess Distribution Loss [(2.2 x 2.5)/10] | Rs. Crore | 0.01 | 0.01 | 0.00 |
| 4.0 | Total FAC based on category wise and slab wise allowed to be recovered | Rs. Crore | 9.30 | 3.02 | 16.64 |
| 5.0 | Carried forward FAC for recovery during future period | Rs. Crore | - | - | - |

9.2 It can be seen from the above Table that **standalone FAC for the months of January, February and March, 2020 is Rs. 9.30 Crore, Rs. 3.02 Crore and Rs 16.64 Crore respectively.** Based on total energy sales and excess distribution losses, FAC per unit has been working out as Rs. 0.31/kWh, Rs. 0.10/kWh and Rs. 0.50/kWh for the months of January, February and March 2020, respectively. Further, the Regulation 10.9 of MYT Regulations, 2015 specifies as:

Provided that the monthly ZFAC shall not exceed 20% of the variable component of Tariff or such other ceiling as may be stipulated by the Commission from time to time:



- 9.3 The FAC per unit for Q4 of FY 2019-20 is lower than the capping of 20% cap specified in Regulation as shown in Table above, hence, there is no restriction triggered with regards to such ceiling for the Q4 months of FY 2019-20.
- 9.4 As against the above TPC-D in its initial FAC submission of Q4 of FY 2019-20 has worked out FAC for the months of January, February and March, 2020 as Rs. (0.003) Crore, Rs. 6.40 Crore and Rs 7.27 Crore, respectively. Based on total energy sales, FAC per unit has been worked out by TPC-D was Rs. 0.00/kWh, Rs. 0.21/kWh and Rs. 0.22/kWh for the months of January, February and March, 2020, respectively. Further, as per the present billing cycle, TPC-D levied the FAC so computed for the month of January, 2020, i.e., Rs. (0.003) Crore in the billing month of March, 2020.
- 9.5 However, the FAC pertaining to the month of February and March, 2020 which was to be levied in their respective billing months, i.e., April and May, 2020, has not been levied by TPC-D. This is mainly because, the Commission vide its MYT Order dated 30 March, 2020 for TPC-D (applicable w.e.f. 1 April 2020) and also vide Letter dated 20 April, 2020 (prior approval of FAC- guidelines to be adopted) at para 13, has given the directives that no FAC should be levied for consumption from 1 April 2020 onwards without prior approval of the Commission. Hence, in compliance to the aforesaid directives, TPC-D has not levied the FAC computed for the month of February and March, 2020. Therefore, the same got unrecovered. Accordingly, TPC-D has claimed un-recovered FAC of Rs. 13.67 Crore (Rs. 6.40 Crore and Rs 7.27 Crore for February and March 2020) in its FAC submission.
- 9.6 **As against the above, the Commission has worked out the un-recovered FAC at the end of present quarter as Rs.19.66 Crore (Rs. 3.02 Cr. and Rs. 16.64 Cr. for February and March 2020). This under recovery is mainly on account of rolled over FAC allowance/disallowance from quarter Q1 to Q4 of FY 2019-20.** Accordingly, the Commission allows net cumulative un-recovered FAC at the end of FY 2019-20 as Rs. 19.66 Crore. The aforesaid unrecovered FAC will be adjusted at the time of final truing up of FY 2019-20 under the MERC MYT Regulations, 2015.

10. Recovery from Consumers:

- 10.1 Regulation 10.9 of MERC MYT Regulations, 2015 provides for methodology of recovery of FAC charge from each category of consumers. The relevant extract is reproduced as below.

“10.9 The ZFAC per kWh for a particular Tariff category/sub-category/consumption slab shall be computed as per the following formula:—

*ZFAC Cat (Rs/kWh) = [ZFAC / (Metered sales + Unmetered consumption estimates + Excess distribution losses)] * k * 10,*

Where:



ZFAC Cat = ZFAC component for a particular Tariff category/sub-category/consumption slab

in 'Rupees per kWh' terms;

$k = \text{Average Billing Rate} / \text{ACOS}$;

Average Billing Rate = Average Billing Rate for a particular Tariff category/sub-category/consumption slab under consideration in 'Rupees per kWh' as approved by the Commission in the Tariff Order:

Provided that the Average Billing Rate for the unmetered consumers shall be based on the estimated sales to such consumers, computed in accordance with such methodology as may be stipulated by the Commission:

ACOS = Average Cost of Supply in 'Rupees per kWh' as approved for recovery by the Commission in the Tariff Order:

Provided that the monthly ZFAC shall not exceed 20% of the variable component of Tariff or such other ceiling as may be stipulated by the Commission from time to time:

Provided further that any under-recovery in the ZFAC on account of such ceiling shall be carried forward and shall be recovered by the Distribution Licensee over such future period as may be directed by the Commission....”

10.2 The following Table shows per unit ZFAC to be charged to the consumers of TPC-D during the billing month of March, 2020.

| S. No | Consumer Category | Slabs | ZFAC to be levied |
|-------|----------------------------|-----------|-----------------------------------------------|
| | | | in billing month of March '20 (Rs./kWh) |
| (A) | LT Category | | |
| 1 | LT 1 – BPL | 0 – 30 | 0.0000 |
| 2 | LT 1 - Residential S1 | 0 – 100 | 0.0000 |
| 3 | LT 1 - Residential S2 | 101 – 300 | -0.0001 |
| 4 | LT 1 - Residential S3 | 301 – 500 | -0.0001 |
| 5 | LT 1 - Residential S4 | > 501 | -0.0002 |
| 6 | LT II Commercial (A) | 0 - 20 kW | -0.0001 |
| 7 | LT II Commercial (B) | 20–50 kW | -0.0001 |
| 8 | LT II Commercial (C) | > 50 kW | -0.0001 |
| 9 | LT III (A) - LT Industries | 0 - 20 kW | -0.0001 |
| 10 | LT III (B) - LT Industries | > 20 kW | -0.0001 |
| 11 | LT IV - Public Water Works | all units | -0.0001 |
| 12 | LT V - Advt & Hoardings | all units | -0.0001 |



| S. No | Consumer Category | Slabs | ZFAC to be levied |
|------------|-----------------------------------------------------------------------|-----------|-----------------------|
| | | | in billing month of |
| | | | March'20 (Rs./kWh) |
| 13 | LT VI - Street Lights | all units | -0.0001 |
| 14 | LT VII (A) - Temporary Supply – Religious | all units | -0.0001 |
| 15 | LT VII (B) - Temporary Supply – Others | all units | -0.0001 |
| 16 | LT VIII - Crematorium and Burial Grounds | all units | -0.0001 |
| 17 | LT IX (A) - Public Service – Govt. Hospitals & Educational Institutes | all units | -0.0001 |
| 18 | LT IX (B) - Public Service – Others | all units | -0.0001 |
| (B) | HT Category | | |
| 19 | HT - I Industry | all units | -0.0001 |
| 20 | HT - II Commercial | all units | -0.0001 |
| 21 | HT - III Group Housing Society (Residential) | all units | -0.0001 |
| 22 | HT - IV Public Water Works | all units | -0.0001 |
| 23 | HT-V Railways, Metro & Monorail | all units | -0.0001 |
| 24 | HT-VI (A) Public Service – Govt. Hospitals & Educational Institutes | all units | -0.0001 |
| 25 | HT-VI (B) Public Service-Others | all units | -0.0001 |
| 26 | HT-VII Temporary Supply | all units | -0.0001 |
| 27 | HT VIII - EV Charging Stations | all units | -0.0001 |

11. Summary

11.1 The Table below shows the summary of FAC claimed by TPC-D vis-à-vis approved by the Commission for Q4 of FY 2019-20:

| Particular | Month | Claimed | Approved | Remarks |
|---------------|-----------------|---------|----------|---------------------------------------|
| FAC (Rs. Cr.) | January | (0.003) | 9.30 | (Rs. 19.66 Cr.) Recoverable |
| | February | 6.40 | 3.02 | |
| | March | 7.27 | 16.64 | |
| FAC per Unit | January | 0.00 | 0.31 | |
| | February | 0.00 | 0.00 | |
| | March | 0.00 | 0.00 | |



11.2 TPC-D has claimed net cumulative un-recovered FAC of Rs. 13.67 Crore at the end of March, 2020 against which the Commission has approved Rs. 19.66 Crore (based on cumulative allowance/disallowance from Q1 to Q4 of FY 2019-20). Since FY 2019-20 is already over, the aforesaid amount will be adjusted in the final True up of FY 2019-20 under MERC MYT Regulations, 2015.

