



महाराष्ट्र विद्युत नियामक आयोग

Maharashtra Electricity Regulatory Commission

Ref. No. MERC/FAC/MSEDCL/ WFH/SBR/ 33

Date: 5 October, 2020

To,
The Managing Director,
Maharashtra State Electricity Distribution Company Ltd.,
5th Floor, Prakashgad, Plot No. G-9
Bandra (East), Mumbai 400 051

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

Reference: MSEDCL's FAC submission vide email dated 1 June, 2020 for post-facto approval of FAC for the period of January, 2020 to March, 2020.

Sir,

Upon vetting the FAC calculations for the month of January, 2020 to March, 2020 as mentioned in the above reference, the Commission has accorded post facto approval to MSEDCL for levying FAC to its consumers as shown in the table below:

ZFAC	January, 2020	February, 2020	March, 2020
FAC allowed (Rs. Crore)	371.21	(24.01)	1,314.09

MSEDCL has computed total FAC of Rs.1,878.44 Crore against which the Commission has approved Rs. 1,661.28 Crore, thus Rs. 217.15 Crore is disallowed as explained in paras 9.2 to 9.10 of this vetting report. As FY 2019-20 is already over and the Commission has also carried out provisional truing up of the same. The above FAC amount shall be reconciled and any variation in allowances and disallowance would be adjusted at the time of final truing up of FY 2019-20 under the MERC (Multi Year Tariff) Regulations, 2015.

Yours faithfully,

(Dr. Rajendra Ambekar)
Executive Director

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

ANNEXURE

Detailed Vetting Report

Date: 5 October, 2020

POST FACTO APPROVAL FOR FAC FOR THE MONTH OF JANUARY, 2020 TO MARCH, 2020

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

Reference: MSEDCL's FAC submission vide email dated 1 June, 2020 for post facto approval of FAC for the period of January, 2020 to March, 2020.

1. FAC submission by MSEDCL:

1.1. MSEDCL has made FAC submissions for the month of January, 2020 to March, 2020, as referred above. Upon vetting the FAC calculations, taking cognizance of all the submissions furnished by MSEDCL, the Commission has accorded post facto approval for the FAC amount to be charged in the billing month of April, 2020 to June, 2020.

2. Background

2.1. On 3rd November, 2016, the Commission has issued Tariff Order for MSEDCL, (Case No.48 of 2016) for approval of True-up of FY 2014-15, provisional True-up for FY 2015-16 and Aggregate Revenue Requirement (ARR) and Tariff for FY 2016-17 and FY 2019-20. Revised Tariff has been made applicable from 1 November, 2016.

2.2. On 12 September, 2018, the Commission has issued Tariff Order for MSEDCL (Case No.195 of 2017) for Mid-Term Review, including True-up of FY 2015-16 and FY 2016-17, provisional True-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 MSEDCL (Case No.322 of 2019) for True-up of FY 2017-18 and FY 2018-19, provisional True-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 1 March, 2017, the Commission accorded prior approval of the FAC for the month of November, 2016.

2.6. In accordance with 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 1 June, 2020, MSEDCL has filed FAC submissions for the month of January, 2020 to March, 2020 for post facto approval. The Commission has scrutinized the submissions provided by MSEDCL 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 MSEDCL 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 by the Commission	Approved for the month	Actual sales (MU)		
			Jan, 2020	Feb, 2020	Mar, 2020
	(I)	(II=I/12)	(III)	(IV)	(V)
I. Metered Category					
HT Category					
Industry General	29,105.86	2,425.49	2,684.22	2,581.43	1,978.34
Industry Seasonal	101.98	8.50	22.38	20.29	13.33
Commercial	1,840.33	153.36	133.56	133.53	108.35
Railway metro monorail	59.25	4.94	5.80	5.67	5.93
Public water works	1,647.46	137.29	163.13	156.20	164.77
Agriculture pumpset	804.12	67.01	56.96	61.56	101.74
Agriculture other	277.03	23.09	19.17	21.06	22.59
Group Housing Society	217.33	18.11	16.23	15.39	17.12
Temp Supply other	4.32	0.36	1.40	1.29	1.22
Public Service Govt	247.72	20.64	18.72	18.50	18.37
Public Service other	769.01	64.08	56.65	56.86	57.28
Electric Vehicle (EV) Charging Stations	0.00	0.00	1.11	1.14	0.89
MSPGCL Aux Consumption	218.25	18.19	13.66	15.32	12.48
Other Adjustment	0.00	0.00	357.12	330.47	309.95
Sub Total	35292.66	2941.06	3,550.12	3,418.71	2,812.34
LT Category					
BPL	54.35	4.53	7.82	7.28	7.45
Residential	20,282.28	1,690.19	1,414.97	1,376.17	1,453.03
Non-residential	6,122.75	510.23	466.46	457.61	382.13
Public water works	780.31	65.03	69.59	68.50	71.86
AG metered pump set	21,090.67	1,757.56	1,361.73	1,361.73	1,349.52
AG metered other	149.67	12.47	11.53	12.81	12.01
Industry	7,232.08	602.67	811.93	803.13	677.15

Consumer Category	Approved by the Commission	Approved for the month	Actual sales (MU)		
			Jan, 2020	Feb, 2020	Mar, 2020
	(I)	(II=I/12)	(III)	(IV)	(V)
Street-light	2,013.76	167.81	162.90	158.97	161.78
Temporary supply	16.13	1.34	3.32	3.62	3.43
Advertisement and hording	5.15	0.43	0.40	0.39	0.41
Crematorium and burial ground	2.18	0.18	0.20	0.16	0.19
Public service	498.95	41.58	39.97	39.73	40.01
Electric Vehicle (EV) Charging Stations	0.00	0.00	0.03	0.05	0.04
Prepaid	0.00	0.00	0.46	0.46	0.56
Sub Total	58,248.28	4,854.02	4,351.31	4,290.62	4,159.59
Energy Sales outside the License Area	0.00	0.00	0.00	0.00	0.00
Sub Total-Metered Sales	93,540.94	7,795.08	7,901.43	7,709.32	6,971.93
Unmetered Sale					
Unmetered Hrs> 7,693.04	3,966.00	330.50	894.47	894.47	838.09
Unmetered Hrs<1318	2,487.00	207.25			
Sub Total - Unmetered	6,453.00	537.75	894.47	894.47	838.09
Grand Total (Metered+ Unmetered)	99,993.94	8,332.83	8,795.90	8,603.79	7,810.01

3.2. The total sale for the month of January, February, and March, 2020 is 8,795.90 MU, 8,603.79 MU, and 7,810.01 MU, respectively, which is observed to be higher in month of January and February, 2020 than that of the MTR approved sales, i.e., 8,332.83 MUs. However, in the month of March, 2020, actual sales are lower than the sales approved in MTR order. The major variation was observed in HT Industry General & Seasonal, Public water works, HT & LT Agriculture, LT Residential, LT Industrial and Un-metered agricultural sales as shown in Table above.

3.3. On response to the clarification sought for variation in category wise sales, MSEDCL stated that the approved sales in MTR Order were estimated based on historical data. Whereas, the actual sales depend on various aspects such as economic conditions, seasonal variation, etc. Hence, it is difficult to provide exact reasons for variation in actual sales of different categories of consumer.

3.4. Further, substantial reduction in total sales is observed in the month of March, 2020 as compared to other months of the quarter. Regarding such variation in sales, MSEDCL in its data gap reply has stated that, in the last week of March, 2020, Lockdown was imposed

by Government (GoI) for prevention of Pandemic COVID-19 which led to drastic decrease in demand of around 5000-6000 MW. Due to this there is significantly reduction in sales during respective month.

4 Cost of Power Purchase

4.1 MSEDCL mainly procures power from following sources;

- a) MSPGCL
- b) MSPGCL Hydro (Ghatghar)
- c) NTPC
- d) JSW (Ratnagiri) Energy Ltd.
- e) Adani Power Limited
- f) Mundra UMPP
- g) Rattan India Power Limited
- h) EMCO Power
- i) NPCIL (KAAP, TAPP)
- j) Renewable Energy Sources
- k) Infirm Power (MSPGCL units under commissioning, other infirm sources)

4.2 MSEDCL also buys power from other sources such as Sardar Sarovar and Pench Hydro project, renewable sources including co-generation, Wind power and Solar. In addition to the above sources, in case of any shortfall from approved sources, when demand exceeds availability or for cost optimization, MSEDCL sources power from exchange/Traders or other sources at the market price through competitive bidding in accordance with the Guidelines of MoP.

4.3 For the present quarter, MSEDCL was asked to provide the details of action taken for optimization of its power purchase cost. In its reply MSEDCL stated that it follows MoD principles and power scheduling is done in real time as per MoD given by SLDC. The demand of MSEDCL is generally catered by scheduling the power from its long term contracted generating sources. The power from long term thermal generators, i.e., stations under MoD, is scheduled as per the MoD stack according to the requirement. The high cost generating units as per MoD, are oftaken fully to cater the peak demand, generally during day time and for the rest of the period the unit is backed down. In order to utilize the least cost generation fully, MSEDCL has exercised the option of giving zero schedule to high cost generating units by optimally scheduling the Koyna Hydro generation during peak period and purchase of power from power exchanges during peak demand period.

4.4 Thus, by implementing above strategies MSEDCL optimized the generation cost by giving higher schedule to least cost generator and giving zero schedule to high cost generator instead of running multiple units on technical minimum. Accordingly, the MSEDCL has also submitted the details of units that were withdrawn under zero schedule/RSD during January, 2020 to March, 2020.

4.5 The Commission in line with its previous post facto FAC approval has considered the revised monthly MoD stack values for this present FAC approval. The following table shows the variation in average power purchase cost (Rs/kWh) for the month of January, 2020 to March, 2020 as compared to average power purchase cost approved as per Tariff Order dated 12 September, 2018:

Source	MTR Approved for January, 2020			Actual for January, 2019			Variation		
	Quantum (MUs)	PP Cost (Rs. Cr)	Rate (Rs. / kWh)	Quantum (MUs)	PP Cost (Rs. Cr)	Rate (Rs. / kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs. / kWh)
MSPCGL Thermal	3,722.07	1,559.42	4.19	3,911.85	2,221.31	5.68	189.78	661.88	1.49
MSPCGL Hydro	334.54	18.89	0.56	400.88	60.91	1.52	66.34	42.02	0.95
NTPC	2,371.72	772.01	3.26	2,658.39	884.26	3.33	286.68	112.24	0.07
1. CGPL	465.45	115.85	2.49	518.01	136.87	2.64	52.56	21.03	0.15
2. Adani	1,794.88	603.49	3.36	2,099.10	723.11	3.44	304.23	119.62	0.08
3. EMCO	116.36	41.53	3.57	108.90	49.15	4.51	(7.46)	7.63	0.94
4. JSW	174.54	55.70	3.19	189.34	59.05	3.12	14.80	3.35	(0.07)
5. Rattan India	-	81.91	0.00	9.19	86.73	94.38	9.19	4.83	94.38
IPPs Total	2,551.23	898.47	3.52	2,924.55	1,054.93	3.61	373.32	156.46	0.09
Solar	395.00	164.19	4.16	317.90	135.36	4.26	(77.10)	(28.83)	0.10
Non- Solar	1,297.86	680.20	5.24	859.51	512.10	5.96	(438.35)	(168.10)	0.72
Other Must Run	588.78	149.70	2.54	449.58	119.14	2.65	(139.20)	(30.56)	0.11
STTP	-	-	0.00	170.74	61.72	3.61	170.74	61.72	3.61
Interstate	-	-	0.00	1.38	0.77	5.57	1.38	0.77	5.57
Total	11,261.19	4,242.89	3.77	11,694.79	5,050.48	4.32	433.60	807.59	0.55

4.6 Thus, for the month of January, 2020, total variation in power purchase cost is Rs. 807.59 Crore out of which Rs. 163.37 Crore was on account of increase in quantum of power purchase of 433.60 MU and Rs. 644.23 Crore was on account of increase in rate of power purchase by Rs. 0.55/kWh.

Source	MTR Approved for February, 2020			Actual for February, 2020			Deviation		
	Quantum (MUs)	PP Cost (Rs. Cr)	Rate (Rs./ kWh)	Quantum (MUs)	PP Cost (Rs. Cr)	Rate (Rs./ kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./ kWh)
MSPCGL Thermal	3,778.77	1,584.22	4.19	4,170.29	2,035.99	4.88	391.52	451.77	0.69
MSPCGL Hydro	312.96	18.89	0.60	245.99	60.03	2.44	(66.97)	41.13	1.84
NTPC	2,347.39	785.79	3.35	2,533.98	936.47	3.70	186.59	150.68	0.35
1. CGPL	435.42	110.97	2.55	483.47	130.46	2.70	48.06	19.50	0.15
2. Adani	1,679.08	577.75	3.44	1,970.48	691.18	3.51	291.40	113.43	0.07
3. EMCO	108.85	40.15	3.69	131.47	54.82	4.17	22.61	14.66	0.48
4. JSW	163.28	53.09	3.25	190.79	57.72	3.03	27.51	4.63	(0.23)

Source	MTR Approved for February, 2020			Actual for February, 2020			Deviation		
	Quantum (MUs)	PP Cost (Rs. Cr)	Rate (Rs./ kWh)	Quantum (MUs)	PP Cost (Rs. Cr)	Rate (Rs./ kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./ kWh)
5. Rattan India	-	81.91	-	240.44	161.97	6.74	240.44	80.07	6.74
IPPs Total	2,386.63	863.87	3.62	3,016.66	1,096.15	3.63	630.02	232.29	0.01
Solar	387.13	160.92	4.16	366.82	154.92	4.22	(20.30)	(6.00)	0.07
Non- Solar	1,271.98	666.63	5.24	831.94	489.10	5.88	(440.04)	(177.53)	0.64
Other Must Run	550.79	140.09	2.54	490.49	133.46	2.72	(60.30)	(6.63)	0.18
STTP	-	-	-	116.48	40.97	3.52	116.48	40.97	3.52
Interstate	-	-	-	1.52	0.83	5.47	1.52	0.83	5.47
Total	11,035.65	4,220.41	3.82	11,774.18	4,947.93	4.20	738.53	727.52	0.38

4.7 Similarly, for the month of February, 2020 total variation in power purchase cost is Rs. 727.52 Crore, out of which Rs. 282.44 Crore was on account of increase in power purchase quantum of 738.53 MU and rest Rs. 445.08 Crore was on account of increase in rate of power purchase by Rs. 0.38/kWh.

Source	MTR Approved for March, 2019			Actual for March, 2019			Deviation		
	Quantum (MUs)	PP Cost (Rs. Cr)	Rate (Rs./ kWh)	Quantum (MUs)	PP Cost (Rs. Cr)	Rate (Rs./ kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./ kWh)
MSPCGL Thermal	4,011.49	1,635.50	4.08	4,220.99	2,042.65	4.84	209.50	407.15	0.76
MSPCGL Hydro	334.54	18.89	0.56	288.86	59.87	2.07	(45.68)	40.98	1.51
NTPC	2,509.28	809.68	3.23	2,629.49	916.62	3.49	120.21	106.94	0.26
1. CGPL	465.45	115.85	2.49	327.52	103.20	3.15	(137.92)	(12.64)	0.66
2. Adani	1,794.88	603.49	3.36	1,903.35	678.89	3.57	108.47	75.40	0.20
3. EMCO	116.36	41.53	3.57	114.25	51.14	4.48	(2.11)	9.61	0.91
4. JSW	174.54	55.70	3.19	3.25	14.34	44.12	(171.29)	(41.36)	40.93
5. Rattan India	-	81.91	-	57.97	106.47	18.37	57.97	24.57	18.37
IPPs Total	2,551.23	898.47	3.52	2,406.34	954.05	3.96	(144.89)	55.57	0.44
Solar	412.66	171.53	4.16	400.82	168.70	4.21	(11.84)	(2.83)	0.05
Non- Solar	1,355.88	710.60	5.24	748.63	422.45	5.64	(607.24)	(288.15)	0.40
Other Must Run	588.78	149.70	2.54	514.98	141.35	2.74	(73.80)	(8.35)	0.20
STTP	-	-	-	248.68	70.40	2.83	248.68	70.40	2.83
Interstate	-	-	-	1.09	3.56	32.61	1.09	3.56	32.61
Total	11,763.86	4,394.38	3.74	11,459.88	4,779.65	4.17	(303.98)	385.27	0.44

4.8 Similar to January and February, 2020, for the month of March, 2020, total variation in power purchase cost is Rs. 385.27 Crore, out of which only Rs. (113.55) Crore was on account of reduction in quantum of power purchase of (303.98 MU) and Rs. 498.82 Crore was on account of increase in rate of power purchase by Rs. 0.44/kWh. As variation in cost of power purchase on account of variation in power procurement quantum is being

recovered through variation in sales to consumers, FAC mechanism only allows impact of increase in power purchase rate to be passed through as FAC rate over and above approved tariff.

4.9 Source wise analysis of above-mentioned power purchase in the month of January, February, and March, 2020 is provided in the para below:

MSPGCL:

4.10 During the Q4 of FY 2019-20, it was observed that MSEDCL has purchased 3,911.85 MUs, 4,107.29 MUs and 4,220.99 MUs of power (including MSPGCL Dhariwal) from MSPGCL's thermal (lignite and gas based) power generating station during the month of January, February and March, 2020. The average power purchase cost (APPC) from MSPGCL's stations considering the fixed charge, variable charge and other charges worked out as Rs. 5.68/kWh, Rs. 4.88/kWh and Rs. 4.84/kWh for the month of January, February and March, 2020, respectively, as against the monthly approved cost of Rs. 4.19/kWh, Rs. 4.19/kWh and Rs. 4.08/kWh, respectively.

4.11 The Table below provides the summary of actual power purchase quantum and cost from MSPGCL's stations vis-à-vis monthly approved power purchase quantum and cost as per MTR approved MoD stack for Q4 of FY 2019-20:

Particular	Approved for January, 2020				Actual for January, 2020			
	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)
Stations included in MoD Stack in MTR Order	3,722.07	2.23	1,325.18	3.56	3,116.63	2.24	1,670.77	5.36
Stations excluded from MoD Stack in MTR Order	-	-	234.24	-	795.22	2.99	550.54	6.92
Total MSPGCL	3,722.07	2.23	1,559.42	4.19	3,911.85	2.39	2,221.31	5.68

*PP Cost= (Variable Cost + Fixed Cost + Other Charges)

^Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity

Particular	Approved for February, 2020				Actual for February, 2020			
	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)
Stations included in MoD Stack in MTR Order	3,778.77	2.26	1,395.60	3.69	3,337.75	2.31	1,586.27	4.75
Stations excluded from MoD Stack in MTR Order	-	-	188.62	-	832.54	3.00	449.72	5.40
Total MSPGCL	3,778.77	2.26	1,584.22	4.19	4,170.29	2.45	2,035.99	4.88

*PP Cost= (Variable Cost + Fixed Cost + Other Charges)

[^]Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity

Particular	Approved for March, 2020				Actual for March, 2020			
	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)
Stations included in MoD Stack in MTR Order	4,011.49	2.26	1,446.88	3.61	3,493.40	2.31	1,624.91	4.65
Stations excluded from MoD Stack in MTR Order	-	-	188.62	-	727.59	2.97	417.74	5.74
Total MSPGCL	4,011.49	2.26	1,635.50	4.08	4,220.99	2.42	2,042.65	4.84

*PP Cost= (Variable Cost + Fixed Cost + Other Charges)

[^]Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity

- 4.12 As can be seen from the Table above that, MSEDCL has procured 795.22 MU, 832.54 MU and 727.59 MU of power in the months of January, February, and March, 2020, respectively, from various stations (Bhusawal 3 & 4-5, Paras 3-4, Parli 5-7 & 8, Nashik 3-5) that were not included in monthly MoD stack approved for MSEDCL in MTR Order. This has resulted in additional variable cost of Rs. 260.77 Crore, Rs. 268.50 Crore and Rs. 230.60 Crore, during respective period.
- 4.13 The reason for such purchase is as mainly on account of lesser generation from those stations that were included in MTR approved MoD stack, increased demand and also due to lesser availability from RE sources. This has led MSEDCL to procure the costlier power of aforesaid MSPGCL's stations as per the Merit Order Despatch determined by MSLDC. Therefore, there is an increase in actual Power Purchase cost as compared to MTR approved cost for Q4 of FY 2019-20.
- 4.14 Apart from the above, the payment of monthly fixed cost during aforesaid period which is based on cumulative availability during the respective period as per Regulation 48.3 of MERC MYT Regulations, 2015 also had an impact on average power purchase cost. During Q3 of FY 2019-20, it was observed that even though some of the generating stations of MSPGCL had lower generation or PLF or under RSD, the cumulative availability of these plants was comparatively higher during respective period. Hence, they were entitled to recover monthly fixed charges inspite of lesser or even zero schedule, as per MERC MYT Regulation, 2015. Accordingly, the spread of full monthly fixed cost over lower generation has impacted the average power purchase cost during respective period. The Table below shows the summary of monthly normative availability and PLF vis-à-vis actual monthly availability and PLF of MSPGCL's Thermal generating stations during Q4 of FY 2019-20:

Station	Normative	Actual			Normative	Actual		
	Availability				PLF			
	FY 2019-20	Jan-20	Feb-20	Mar-20	FY 2019-20	Jan-20	Feb-20	Mar-20
MSPGCL								
BHUSAWAL (Unit 3)	80.00	99.47	99.47	99.47	80.00	-	-	-
BHUSAWAL (Unit 4 & 5)	85.00	100.00	93.95	95.99	85.00	-	50.42	57.02
KHAPARKHEDA (Unit 1 to 4)	85.00	91.71	88.80	88.40	85.00	54.05	84.70	63.13
KHAPARKHEDA (Unit 5)	85.00	96.46	83.84	91.79	85.00	88.67	79.67	81.17
NASHIK (Unit 3 to 5)	80.00	72.60	94.90	95.61	80.00	26.31	26.72	21.40
CHANDRAPUR (Unit 3 to 7)	80.00	65.83	58.42	75.87	80.00	61.55	53.86	58.45
PARAS (Unit 3 & 4)	85.00	92.17	83.02	88.08	85.00	81.66	77.36	82.29
PARALI (Unit 6 & 7)	85.00	98.86	97.21	98.85	85.00	48.46	76.15	37.99
KORADI (Unit 6 & 7)	72.00	78.49	78.49	78.49	72.00	-	-	-
KORADI (Unit 8 ,9 & 10)	85.00	68.33	64.22	69.47	85.00	65.86	62.83	67.62
CHANDRAPUR (Unit 8 & 9)	85.00	93.97	92.81	84.45	85.00	89.48	89.31	79.02
PARLI (UNIT 8)	85.00	97.70	83.86	100.00	85.00	75.01	72.80	63.61
Uran*	60.84	33.98	54.95	42.87	60.84	33.61	54.35	42.43

*lower availability of Uran due to gas supply shortage

4.15 The Table below shows the summary of MSPGCL's stations which were under zero schedule during Q4 of FY 2019-20 to optimise the power purchase cost:

Sr No	MSPGCL's Station	January, 2020		February, 2020		March, 2020	
		VC as per SLDC MoD (Rs/unit)	No. of Days Under Zero Schedule (Days)	VC as per SLDC MoD (Rs/unit)	No. of Days Under Zero Schedule (Days)	VC as per SLDC MoD (Rs/unit)	No. of Days Under Zero Schedule (Days)
1	Nasik U3	-	-	4.150	29	4.378	31
2	Nasik U4	-	-	-	-	4.378	7
3	Koradi U6-U7	3.778	31	3.778	29	3.778	31
4	Parali U6	3.310	16	-	-	3.356	17
5	Parali U7	3.310	11	-	-	3.356	19
6	Gadarwara	3.068	31	3.045	6	3.312	31
7	Bhusawal U3	3.097	31	3.905	29	3.905	31
8	Bhusawal U4	3.403	31	3.203	11	3.203	10
9	Bhusawal U5	3.403	31	3.203	12	3.203	9
10	Parali U8	3.217	5	-	-	3.189	9
11	Khaparkheda U1-U2	3.109	11	-	-	3.120	7
12	Khaparkheda U3-U4	3.109	11	-	-	3.120	6
13	Chandrapur U3-U5	-	-	-	-	3.105	6
14	Chandrapur U6-U7	-	-	-	-	3.105	3

4.16 The Commission has sought reasoning for lower PLF and has also asked MSEDCL to confirm if it has fully utilised the contracted capacity declared by MSPGCL before scheduling any power from other costlier sources. In its response, MSEDCL stated that the contracted capacities declared by all the stations were utilised with view to optimise power

purchase cost. Some of the stations having higher variable cost were withdrawn and taken under zero schedule as per MOD stack for respective period /month and power from on-bar stations were scheduled as per MOD principles.

4.17 MSEDCL further stated that Bhusawal Unit-3 and Koradi Unit-6-7 was under zero schedule, hence no power was purchased from these two units in Q4 of FY 2019-20. MSEDCL confirmed that it has followed MoD principles and power scheduling is done in real time as per MoD by SLDC. Therefore, during the period January 2020 to March 2020 the lower PLF is on account of lower scheduling of the units or occasionally plant related issues but not on account of lower fuel availability. Further, there is gas supply shortage at Uran GTPS since long which has resulted in lower PLF of said Unit.

4.18 Also, as stated above that the payment of monthly fixed is based on cumulative availability and as FY 2019-20 is over, the Commission has sought for details of total fixed charges paid to MSPGCL vis-à-vis approved during FY 2019-20. MSEDCL submitted the details as shown in Table below:

Sr No	Stations	Normative Availability	Actual Cumulative Availability at the end of Q4	FC Approved in MTR Order for FY 2019-20 (Rs. Crore)	Actual AFC paid during FY 2019-20 (Rs. Crore)
1	Bhusawal U3	80.00%	96.53%	120.76	132.31*
2	Bhusawal U4 & U5	85.00%	83.72%	1094.96	1,078.74
3	Kaperkheda U1 to U4	85.00%	73.38%	495.21	459.41
4	Kaperkheda U5	85.00%	81.87%	545.20	525.23
5	Nashik U3 to U5	80.00%	81.14%	448.67	448.67
6	Chandrapur U3 to U7	80.00%	61.70%	859.69	699.70
7	Chandrapur U8 to U9	85.00%	82.09%	1,352.42	1,306.90
8	Paras U3 & U4	85.00%	81.43%	547.73	524.90
9	Parli U6 & U7	85.00%	78.34%	167.08	463.61*
10	Parli U8	85.00%	67.48%	265.66	337.09*
11	Koradi U6 & U7	72.00%	66.15%	334.16	307.08
12	Koradi U8 to U10	85.00%	53.75%	2,361.33	1,506.11
13	Uran Gas TPS	60.84%	44.92%	151.07	111.73
14	Parali U4 & U5	Units withdrawn		16.41	10.94
	Total Annual Fixed Charge			8,742.92	7,912.42

* lower AFC was approved for stations in the MTR Order considering the reduced availability based on the past experience. However, it was allowed to claim the full fixed charges on achievement towards the normative availability. As the actual availability of stations are comparatively higher, hence, actual AFC paid is more than approved.

4.19 Further, in addition to the fixed charges and variable charges, MSPGCL has also claimed other charges which are primarily related to Fuel Surcharge Adjustment (FSA) charges during the respective month. These charges have arrived due to variation in actual energy charge vis-à-vis MTR approved energy charge during Q4 months of FY 2019-20. Accordingly, MSPGCL has claimed Rs. 512.76 Crore, Rs. 278.03 Crore and Rs. 250.05

Creore of other charges during the months of January, February and March, 2020. Further, the FSA charges mainly for the month of January is higher because, MSEDCL during the said month has considered FSA charges pertaining to the month of December, 2019 also. MSEDCL clarified that during previous quarter, due to delay in scrutiny of FSA invoices, the amount pertaining to the month of December, 2019 got unrecovered. Hence, the same is considered in subsequent month, i.e., during the month of January, 2020.

4.20 The Table below shows the summary of actual energy charges and MTR approved energy charges for various MSPGCL's generating stations during Q4 months of FY 2019-20:

Sr No	Stations	Approved (Rs./kWh)	Actual for Jan, 2020 (Rs./kWh)	Actual for Feb, 2020 (Rs./kWh)	Actual for Mar, 2020 (Rs./kWh)
1	Bhusaval U3	3.097	Nil	Nil	Nil
2	Bhusaval U4 & U5	2.774	Nil	3.277	3.152
3	Kaperkheda U1 to U4	2.626	3.120	3.128	2.959
4	Kaperkheda U5	2.240	3.066	3.079	2.885
5	Nashik U3 to U5	3.436	4.378	4.121	3.933
6	Chandrapur U3 to U7	2.113	3.105	3.149	2.991
7	Paras U3 & U4	2.787	3.001	2.919	2.975
8	Parali U6 & U7	3.106	3.356	3.340	3.345
9	Koradi U6 & U7	2.471	Nil	Nil	Nil
10	Koradi U8 to U10	2.364	2.952	3.244	3.107
11	Chandrapur U8 and U9	2.121	2.987	2.996	2.974
12	Parali U8	2.971	3.189	3.190	3.151
13	Uran Gas TPS	1.944	2.251	2.255	2.260

4.21 As can be seen from above Table, that during Q4 of FY 2019-20 the actual energy charges for almost all the generating stations of MSPGCL is higher than the energy charge approved in MTR Order. The above variation in actual energy charge is mainly due to variation in landed price of fuel and GCV with respect to various MSPGCL's generating stations during the aforesaid period. This has impacted the average power purchase cost during the respective period. MSEDCL vide its data gap reply has submitted the detailed working of above-mentioned energy charges. The Commission has verified the same and found them to be in order.

4.22 The Table below shows the variation in power purchase in terms of per unit variable charge, per unit fixed charge and average power purchase cost for MSPGCL's generating stations during Q4 of FY 2019-20:

Particular	Approved for January, 2020						Actual for January, 2020						Variation					
	Quantum (MUs)	Variable Cost *		Fixed Cost		APPC (Rs./ kWh)	Quantum (MUs)	Variable Cost *		Fixed Cost		APPC (Rs./ kWh)	Quantum (MU)	Variable cost		Fixed cost		APPC (Rs./ kWh)
		(Rs. Crore)	(Rs./ kWh)	(Rs. Crore)	(Rs./ kWh)			(Rs. Crore)	(Rs./ kWh)	(Rs. Crore)	(Rs./ kWh)			(Rs. Crore)	(Rs./ kWh)			
Stations included in MoD Stack in MTR Order	3,722.07	830.85	2.23	494.33	1.33	3.56	3,116.63	1,188.25	3.81	482.52	1.55	5.36	(605.44)	357.41	1.58	(11.82)	0.22	1.80
Stations excluded from MoD Stack in MTR Order	-	-	-	234.24^	-	-	795.22	260.77	3.28	289.77	3.64	6.92	795.22	260.77	3.28	55.53	3.64	6.92
Total MSPGCL	3,722.07	830.85	2.23	728.58	1.96	4.19	3,911.85	1,449.02	3.70	772.29	1.97	5.68	189.78	618.17	1.47	43.71	0.02	1.49

*Variable cost inclusive of actual fuel surcharge adjustment charges (i.e., other charges) for the month of December, 2019 and January, 2020.

^Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity.

The fixed charge per unit for both category of stations, i.e., included in MoD and excluded in MoD are higher and weighted avg. per unit fixed cost for combined MSPGCL stations is marginally higher as compared to MTR approved price. The Commission in its MYT Order dated 12 September, 2018 has approved the fixed charges on the reduced availability based on the past experience. However, the Commission has allowed to claim the full fixed charges on achievement towards the normative availability. During aforesaid period, the availability of some of the generating stations such as Bhusawal U3, Parli 6-7, Chandrapur U8 & 9, Paras U3 & 4 etc., were comparatively higher. Hence, MSPGCL has recovered the disallowed AFC though its monthly energy bill, resulting in marginally higher per unit fixed cost.

Particular	Approved for February, 2020						Actual for February, 2020						Variation					
	Quantum (MUs)	Variable Cost *		Fixed Cost		APPC (Rs./ kWh)	Quantum (MUs)	Variable Cost *		Fixed Cost		APPC (Rs./ kWh)	Quantum (MU)	Variable cost		Fixed cost		APPC (Rs./ kWh)
		(Rs. Crore)	(Rs./ kWh)	(Rs. Crore)	(Rs./ kWh)			(Rs. Crore)	(Rs./ kWh)	(Rs. Crore)	(Rs./ kWh)			(Rs. Crore)	(Rs./ kWh)			
Stations included in MoD Stack in MTR Order	3,778.77	855.64	2.26	539.96	1.43	3.69	3,337.75	1,029.40	3.08	556.86	1.67	4.75	(441.02)	173.76	0.82	16.91	0.24	1.06
Stations excluded from MoD Stack in MTR Order	-	-	-	188.62^	-	-	832.54	268.50	3.23	181.22	2.18	5.40	832.54	268.50	3.23	(7.40)	2.18	5.40
Total MSPGCL	3,778.77	855.64	2.26	728.58	1.93	4.19	4,170.29	1,297.90	3.11	738.09	1.77	4.88	391.52	442.26	0.85	9.51	(0.16)	0.69

*Variable cost inclusive of actual fuel surcharge adjustment charges (i.e., other charges) for the month of February, 2020.

^Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity.

The fixed charge per unit for both category of stations, i.e., included in MoD and excluded in MoD are higher. However, weighted avg. per unit fixed cost for combined MSPGCL stations is lower as compared to MTR approved charge. This is mainly because in MTR Order no generation was envisaged from certain stations and only fixed cost were considered which resulted in higher per unit fixed charge. However, in actual MSEDCL has purchased power from those stations, hence, spread of fixed cost over additional generation has resulted in lowering of per unit fixed cost.

Particular	Approved for March, 2020						Actual for March, 2020						Variation					
	Quantum (MUs)	Variable Cost *		Fixed Cost		APPC (Rs./ kWh)	Quantum (MUs)	Variable Cost *		Fixed Cost		APPC (Rs./ kWh)	Quantum (MU)	Variable cost		Fixed cost		APPC (Rs./ kWh)
		(Rs. Crore)	(Rs./ kWh)	(Rs. Crore)	(Rs./ kWh)			(Rs. Crore)	(Rs./ kWh)	(Rs. Crore)	(Rs./ kWh)			(Rs. Crore)	(Rs./ kWh)			
Stations included in MoD Stack in MTR Order	4,011.49	906.92	2.26	539.96	1.35	3.61	3,493.40	1,042.14	2.98	582.76	1.67	4.65	(518.09)	135.22	0.72	42.81	0.32	1.04
Stations excluded from MoD Stack in MTR Order	-	-	-	188.62 [^]	-	-	727.59	230.60	3.17	187.14	2.57	5.74	727.59	230.60	3.17	(1.48)	2.57	5.74
Total MSPGCL	4,011.49	906.92	2.26	728.58	1.82	4.08	4,220.99	1,272.74	3.02	769.91	1.82	4.84	209.50	365.82	0.75	41.33	0.01	0.76

*Variable cost inclusive of actual fuel surcharge adjustment charges (i.e., other charges) for the month of March, 2020.

[^]Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity.

4.23 Variation in power purchase expenses from MSPGCL during Q4 of FY 2019-20 can be divided into two part, i.e., variation in power purchase expense on account of variation in quantum purchase and variation in power purchase expense on account of increased per unit rate as follows:

Month	Variation in Expenses for power purchase from MSPGCL (Rs. Crore)		
	On Account of Variation in Quantum of Power Purchase	On Account of Variation in Per Unit rate of Power Purchase	Total
January, 2020	79.51	582.37	661.88
February, 2020	164.14	287.63	451.77
March, 2020	85.41	321.74	407.15

4.24 Out of above total variation as mentioned in Table above, variation in power purchase expense on account of increased per unit rate is only considered for FAC computation.

NTPC

4.25 MSEDCL has purchased total 2,658.39 MUs, 2,533.98 MUs and 2,629.49 MUs of power from NTPC's stations (including NTPC NVVNL bundled power) as compared to MTR approved monthly MoD stack of 2,371.72 MUs, 2,347.39 MUs and 2,509.28 MUs during the months of January, February, and March, 2020, respectively.

4.26 Power purchase cost considered for the NTPC also includes the RRAS (Ancillary Service) cost of Rs. (1.17) Crore in the month of March, 2020. In support to RRAS cost, MSEDCL has submitted the RRAS settlement statement prepared in-line with the CERC's Ancillary Service Operation Regulation, 2015. The Commission has verified that actual quantum of power purchase and cost from the detailed summary bills/invoices submitted by MSEDCL and found them to be in order. The above power from NTPC's stations has been procured at an average power purchase cost of Rs. 3.33/ kWh, Rs. 3.70/ kWh and Rs. 3.49/kWh as compared to monthly approved cost of Rs. 3.26/kWh, Rs. 3.35/kWh and Rs. 3.23/kWh derived considering the MTR approved MoD stack value for the month of January, February, and March, 2020, respectively.

4.27 The Table below shows variation in power purchase in terms of per unit variable charge, per unit fixed charge and average power purchase cost for NTPC's generating stations during Q4 of FY 2019-20:

Particular	Approved for January, 2020						Actual for January, 2020						Variation					
	Quantum (MUs)	Variable Cost*		Fixed Cost		APPC (Rs./ kWh)	Quantum (MUs)	Variable Cost*		Fixed Cost		APPC (Rs./ kWh)	Quantum (MUs)	Variable Cost*		Fixed Cost		APPC (Rs./ kWh)
		(Rs. Cr)	(Rs./ kWh)	(Rs. Cr)	(Rs./ kWh)			(Rs. Cr)	(Rs./ kWh)	(Rs. Cr)	(Rs./ kWh)			(Rs. Cr)	(Rs./ kWh)			
Stations included in MoD Stack in MTR Order	2,371.72	354.57	1.49	261.79	1.10	2.60	2,240.55	341.63	1.52	262.23	1.17	2.70	(131.16)	(12.94)	0.03	0.43	0.07	0.10
Stations not included in MoD stack in MTR Order:																		
<i>i.Mauda II</i>	-	0.72	-	13.18	-	-	277.72	83.79	3.02	46.41	1.67	4.69	277.72	83.07	3.02	33.23	1.67	4.69
<i>ii.NTPC Solapur 2</i>	-	-	-	44.34	-	-	-	-	-	-	-	-	-	-	-	(44.34)	-	-
<i>iii.Mauda I</i>	-	0.72	-	47.38	-	-	128.16	40.70	3.18	42.98	3.35	6.53	128.16	39.98	3.18	(4.41)	3.35	6.53
<i>iv.NTPC Solapur</i>	-	-	-	49.30	-	-	-	(2.15)	-	64.92	-	-	-	(2.15)	-	15.62	-	-
<i>v.NTPC NVVN Coal</i>	-	-	-	-	-	-	11.96	3.75	3.13	-	-	3.13	11.96	3.75	3.13	-	-	3.13
Total Stations excluded in MoD Stack in MTR Order	-	1.44	-	154.21	-	-	417.84	126.09	3.02	154.31	3.69	6.71	417.84	124.64	3.02	0.11	3.69	6.71
RRAS (Thermal)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RRAS (Gas)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total NTPC	2,371.72	356.01	1.50	416.00	1.75	3.26	2,658.39	467.71	1.76	416.54	1.57	3.33	286.68	111.70	0.26	0.54	(0.19)	0.07

*PP Cost= (Variable Cost + Fixed Cost + Other Charges)

^Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity.

Particular	Approved for February, 2020						Actual for February, 2020						Variation					
	Quantum (MUs)	Variable Cost*		Fixed Cost		APPC (Rs./ kWh)	Quantum (MUs)	Variable Cost*		Fixed Cost		APPC (Rs./ kWh)	Quantum (MUs)	Variable Cost*		Fixed Cost		APPC (Rs./ kWh)
		(Rs. Cr)	(Rs./ kWh)	(Rs. Cr)	(Rs./ kWh)			(Rs. Cr)	(Rs./ kWh)	(Rs. Cr)	(Rs./ kWh)			(Rs. Cr)	(Rs./ kWh)			
Stations included in MoD Stack in MTR Order	2,347.39	369.07	1.57	269.45	1.15	2.72	2,304.18	450.93	1.96	298.76	1.30	3.25	(43.21)	81.86	0.38	29.31	0.15	0.53
Stations not included in MoD stack in MTR Order:																		
<i>i.Khargone</i>	-	-	-	5.52	-	-	24.68	7.21	2.92	5.11	2.07	4.99	24.68	7.21	2.92	(0.41)	2.07	4.99
<i>ii.NTPC Solapur 2</i>	-	-	-	44.34	-	-	-	-	-	-	-	-	-	-	-	(44.34)	-	-
<i>iii.Mauda I</i>	-	0.72	-	47.38	-	-	194.25	61.14	3.15	44.87	2.31	5.46	194.25	60.42	3.15	(2.52)	2.31	5.46
<i>iv.NTPC Solapur</i>	-	-	-	49.30	-	-	-	0.01	-	64.27	-	-	-	0.01	-	14.97	-	-
<i>v.NTPC NVVN Coal</i>	-	-	-	-	-	-	10.87	4.17	3.84	-	-	3.84	10.87	4.17	3.84	-	-	3.84
Total Stations excluded in MoD Stack in MTR Order	-	0.72	-	146.55	-	-	229.80	72.53	3.16	114.25	4.97	8.13	229.80	71.81	3.16	(32.30)	4.97	8.13
RRAS (Thermal)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RRAS (Gas)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total NTPC	2,347.39	369.79	1.58	416.00	1.77	3.35	2,533.98	523.46	2.07	413.01	1.63	3.70	186.59	153.67	0.49	(2.99)	(0.14)	0.35

*PP Cost= (Variable Cost + Fixed Cost + Other Charges)

^Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity.

Particular	Approved for March, 2020						Actual for March, 2020						Variation					
	Quantum (MUs)	Variable Cost*		Fixed Cost		APPC (Rs./ kWh)	Quantum (MUs)	Variable Cost*		Fixed Cost		APPC (Rs./ kWh)	Quantum (MUs)	Variable Cost*		Fixed Cost		APPC (Rs./ kWh)
		(Rs. Cr)	(Rs./ kWh)	(Rs. Cr)	(Rs./ kWh)			(Rs. Cr)	(Rs./ kWh)	(Rs. Cr)	(Rs./ kWh)			(Rs. Cr)	(Rs./ kWh)			
Stations included in MoD Stack in MTR Order	2,509.28	392.96	1.57	269.45	1.07	2.64	2,420.08	439.60	1.82	297.77	1.23	3.05	(89.21)	46.64	0.25	28.32	0.16	0.41
Stations not included in MoD stack in MTR Order:																		
<i>i.Mauda II</i>	-	-	-	5.52	-	-	8.97	2.83	3.15	5.05	5.63	8.79	8.97	2.83	3.15	(0.47)	5.63	8.79
<i>ii.NTPC Solapur 2</i>	-	-	-	44.34	-	-	-	-	-	-	-	-	-	-	-	(44.34)	-	-
<i>iii.Mauda I</i>	-	0.72	-	47.38	-	-	157.07	50.10	3.19	43.32	2.76	5.95	157.07	49.38	3.19	(4.07)	2.76	5.95
<i>iv.NTPC Solapur</i>	-	-	-	49.30	-	-	31.98	10.02	3.13	65.08	20.35	23.48	31.98	10.02	3.13	15.78	20.35	23.48
<i>v.NTPC NVVN Coal</i>	-	-	-	-	-	-	11.40	4.03	3.54	-	-	3.54	11.40	4.03	3.54	-	-	3.54
Total Stations excluded in MoD Stack in MTR Order	-	0.72	-	146.55	-	-	209.42	66.98	3.20	113.45	5.42	8.62	209.42	66.26	3.20	(33.10)	5.42	8.62
RRAS (Thermal)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RRAS (Gas)	-	-	-	-	-	-	-	(1.17)	-	-	-	-	-	(1.17)	-	-	-	-
Total NTPC	2,509.28	393.68	1.57	416.00	1.66	3.23	2,629.49	505.41	1.92	411.21	1.56	3.49	120.21	111.73	0.35	(4.79)	(0.09)	0.26

*PP Cost= (Variable Cost + Fixed Cost + Other Charges)

^Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity.

- 4.28 As can be seen from Table above, MSEDCL has procured around 417.84 MUs, 229.80 MUs and 209.42 MUs of power during the month of January, February and March, 2020 from the NTPC generating stations (including NTPC NVVN bundled power) that were not included in monthly MoD stack in MTR Order (owing to high energy price). The above power purchase has resulted in additional variable cost of Rs. 126.09 Crore, Rs. 72.53 Crore and Rs. 66.98 Crore. This has led to increase in actual power purchase cost during the respective period. The Commission has verified the actual quantum of power purchase and cost from NTPC stations from the detailed summary bills/invoices submitted by MSEDCL and found them to be in order.
- 4.29 As can be seen from above Table, that the Commission in its MoD stack under MTR Order has not included quantum from some of the NTPC's generating stations such as Khargone, Mauda I, II and Solapur for Q4 of FY 2019-20 owing to its high energy price. However, in actual, due to lesser generation of stations that were included in MTR MoD stack and also due to lesser availability of RE sources, MSEDCL in order to satisfy the demand had procured the costlier power of these NTPC stations. MSEDCL has also considered the NVVNL bundled power from NTPC during the respective period. This has led to increase in actual power purchase cost during the respective period.
- 4.30 Further, the variation in power purchase expenses from NTPC station during Q4 of FY 2019-20 can be divided into two part, i.e., variation in power purchase expense on account of variation in quantum purchase and variation in power purchase expense on account of increased per unit rate as follows:

Month	Variation in Expenses for power purchase from NTPC (Rs. Crore)		
	On Account of Variation in Quantum of Power Purchase	On Account of Variation in Per Unit rate of Power Purchase	Total
January, 2020	93.32	18.93	112.24
February, 2020	62.46	88.22	150.68
March, 2020	38.79	68.15	106.94

- 4.31 Out of above total variation as mentioned in Table above, variation in power purchase expense on account of increased per unit rate is only considered for FAC computation.

IPPs

- 4.32 The sources of IPPs for MSEDCL include Mundra CGPL UMPP and IPPs such as JSW, EMCO Power, India Bulls Power (RattanIndia) and Adani Power. During scrutiny it was observed that, while the power purchase quantum (MUs) and capacity charges with respect to IPPs were matching with the bills, there were differences in the energy charges and other charges as considered in FAC computations. The Commission sought clarifications on the same along with reconciliation and additional bills, if any, for all the three months of Q4

of FY 2019-20. MSEDCL submitted the reconciliation and clarified that the aforesaid differences are mainly on account of Change in Law (CIL) claim by IPPs in addition to monthly energy bills during the respective period. MSEDCL has added the respective CIL claim in the energy charges amount while computing FAC, therefore the same is not matching with the energy charges amount as shown in bills. MSEDCL further, clarified the Change in Law claims raised by the generators are according to their technical parameters, whereas MSEDCL works out the CIL claim amount based on normative / bid parameters. These parameters include SHR of power plant, GCV of coal, etc. which have impact of coal consumption. Therefore, there is a difference in CIL amount claimed by generator and that worked out by MSEDCL. The Commission has verified the reconciliation submitted by MSEDCL has found to be in order.

4.33 MSEDCL has procured 2,924.55 MUs, 3,016.66 MUs and 2,406.34 MUs of power from above mentioned IPPs, as against the monthly approved MoD stack of 2,551.23 MUs, 2,386.63 MUs and 2,551.23 MUs respectively during the months of January, February, and March, 2020. The average power purchase cost from these stations stands at Rs. 3.61/kWh, Rs. 3.63/kWh, and Rs. 3.96/kWh respectively as compared to monthly approved rate of Rs. 3.52/kWh, Rs. 3.62/kWh, and Rs. 3.52/kWh for the respective months of Q4 FY 2019-20. The power purchase cost from IPPs were observed higher than that of MTR approved MoD stack, mainly due to following reasons:

- a. Change in actual quantum of power from various IPPs as against the quantum approved in MTR MoD stack.
- b. Revision in quoted Tariff.
- c. Inclusion of Change in Law amount during the respective period.

4.34 It is to be noted that the Commission in its MTR Order has not included any quantum from Rattan India Power Ltd (RIPL 450MW and 750MW unit) under approved MoD stack during Q4 of FY 2019-20. The approved energy charges for above mentioned plants were Rs. 3.14/kWh (RIPL 450 & 750) as against the energy charges ranging from Rs. 1.63/kWh to Rs. 2.50/kWh for stations that were included in MoD stack. However, due to lower availability of RE sources and to cater the demand during respective period, MSEDCL has purchased 9.19 MUs, 240.44 and 57.97 MUs from RIPL units during the month of January, February and March, 2020, respectively as shown in Table below:

Particular	Approved for January, 2020				Actual for January, 2020			
	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)
Stations included in MoD Stack in MTR Order	2,551.23	2.10	816.57	3.20	2,915.36	2.26	968.19	3.32
Stations not included in MoD stack in MTR Order:								
i. RIPL 450	-	3.14	81.91 [^]	-	3.45	3.37	32.53	94.38
ii. RIPL 750	-	3.14		-	5.74	3.37	54.21	94.38

Particular	Approved for January, 2020				Actual for January, 2020			
	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)
Total Stations excluded in MoD Stack in MTR Order	-	-	81.91	-	9.19	3.37	86.73	94.38
Total IPPs	2,551.23	2.10	898.47	3.52	2,924.55	2.26	1,054.93	3.61

Particular	Approved for February, 2020				Actual for February, 2020			
	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)
Stations included in MoD Stack in MTR Order	2,551.23	2.10	781.96	3.28	2,776.21	2.28	934.18	3.36
Stations not included in MoD stack in MTR Order:								
<i>i. RIPL 450</i>	-	3.14	81.91 [^]	-	90.17	3.36	60.74	6.74
<i>ii. RIPL 750</i>	-	3.14		-	150.28	3.36	101.23	6.74
Total Stations excluded in MoD Stack in MTR Order	-	-	81.91	-	240.44	3.36	161.97	6.74
Total IPPs	2,386.63	2.10	863.87	3.62	3,016.66	2.37	1,096.15	3.63

Particular	Approved for March, 2020				Actual for March, 2020			
	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)	Quantum (MUs)	Variable charge (Rs./kWh)	PP Cost* (Rs. Cr)	APPC (Rs./kWh)
Stations included in MoD Stack in MTR Order	2,551.23	2.10	816.57	3.20	2,348.37	2.27	847.57	3.61
Stations not included in MoD stack in MTR Order:								
<i>i. RIPL 450</i>	-	3.14	81.91 [^]	-	21.74	3.39	39.93	18.37
<i>ii. RIPL 750</i>	-	3.14		-	36.23	3.39	66.55	18.37
Total Stations excluded in MoD Stack in MTR Order	-	-	81.91	-	57.97	3.39	106.47	18.37
Total IPPs	2,551.23	2.10	898.47	3.52	2,406.34	2.29	954.05	3.96

*PP Cost=(Variable Cost + Fixed Cost + Other Charges)

[^]Fixed cost payable as per the terms and conditions of the PPAs irrespective of utilisation of generation capacity.

4.35 Further, apart from additional power purchase from costlier sources as per Table above, the variation in the power purchase cost is also due to revision/change in quoted tariff as the quoted tariff are linked to various factors such as variation in monthly exchange rates, CERC index for inland handling of imported fuel and for inland transportation of fuel. CERC has published new escalation indices in June 2018 & July 2018 and revised the escalation index applicable to Domestic coal and transportation from April 2013. This has resulted in increase in Energy Charges. Due to the above, the average power purchase cost has increased significantly during the respective period.

4.36 Also, as stated above MSEDCL has also considered Change in Law (CIL) claim by IPPs in power purchase cost which is in addition to monthly energy bills during the respective period. These Change in Law (CIL) events are related to imposition of GST compensation cess, change in royalty, custom duty and carrying cost on CIL, etc. during the aforesaid period. These Change in Law events have been approved by the respective Orders of the Commission, as the case may be, under the provisions of respective PPAs. MSEDCL has submitted the CIL invoices for the concerned period.

4.37 The Table below shows the reconciliation of CIL submitted by the MSEDCL during Q4 period can be seen below:

Month	Sr. No	IPP	MU	As per CIL bills (Rs. Cr)	Regular CIL	
					Rs. Cr	Rs/ kWh
Jan-20	1	Adani Power	2,099.10	71.22	69.18	0.33
	2	RIPL	9.19	16.42	0.32	0.35
	3	CGPL	518.01	9.09	8.75	0.17
	4	GMR	108.90	4.34	3.89	0.36
	5	JSW	189.34	4.83	4.35	0.23
	6	Total	2,924.55	105.90	86.50	0.30

Month	Sr. No	IPP	MU	As per CIL bills (Rs. Cr)	Regular CIL	
					Rs. Cr	Rs/ kWh
Feb-20	1	Adani Power	1,970.48	66.88	65.00	0.33
	2	RIPL	240.44	21.27	8.37	0.35
	3	CGPL	483.47	9.36	8.81	0.18
	4	GMR	131.47	5.17	4.68	0.36
	5	JSW	190.79	4.87	4.39	0.23
	6	Total	3,016.66	107.56	91.25	0.30

Month	Sr. No	IPP	MU	As per CIL bills (Rs. Cr)	Regular CIL	
					Rs. Cr	Rs/ kWh
Mar-20	1	Adani Power	1,903.35	64.94	61.53	0.32
	2	RIPL	57.97	15.23	2.05	0.35
	3	CGPL	327.52	5.82	6.18	0.19
	4	GMR	114.25	5.02	4.12	0.36
	5	JSW	3.25	0.08	0.08	0.23
	6	Total	2,406.34	91.11	73.95	0.31

4.38 From the Table above, the regular CIL pertains to change in royalty, GST compensation cess etc., which are claimed by IPPs on monthly basis. The payment of these CIL are as per the Commission's Order or APTEL Judgement as the case may be. Accordingly, there is an impact of Rs. 0.30/kWh, Rs. 0.30/kWh and Rs.0.31/kWh during the month of January, February, and March 2020 respectively. This has led to increase in actual power purchase cost from IPPs as compared to monthly approved cost.

4.39 Further, MSEDCL has also submitted the detail of total CIL amount claimed and its impact on PPC as follows:

Sr. No	IPP	MU	Regular CIL		NCDP/Coal shortfall/Shakti		Total CIL	
			Rs. Cr	Rs/kWh	Rs. Cr	Rs/kWh	Rs. Cr	Rs/kWh
1	Quarter 1	9,175.88	270.65	0.29	200.00	0.22	470.65	0.51
2	Quarter 2	7,682.03	228.94	0.30	91.00	0.12	319.94	0.42
3	Quarter 3	8,102.53	245.99	0.30	100.00	0.12	345.99	0.43
4	Quarter 4	8,347.54	251.69	0.30	-	-	251.69	0.30
5	Total in FY 2019-20	33,307.98	997.27	0.30	391.00	0.12	1,388.27	0.42

4.40 From above table it was observed that the impact of Regular CIL on the APPC of IPPs is uniform over the FY 2019-20. However, as the CIL on account of NCDP/Coal shortfall/Shakti was not claimed in Q4 of FY 2019-20, result in lower impact of CIL in respective quarter. Thus, from the above Table over-all impact of CIL during FY 2019-20 is worked out to be Rs. 0.42/kWh.

4.41 Further, the variation in power purchase expenses from IPPs during Q4 of FY 2019-20 can be divided into two parts, i.e., variation in power purchase expense on account of variation in quantum purchase and variation in power purchase expense on account of increased per unit rate as follows:

Month	Variation in Expenses for power purchase from IPPs (Rs. Crore)		
	On Account of Variation in Quantum of Power Purchase	On Account of Variation in Per Unit rate of Power Purchase	Total
January, 2020	131.47	24.98	156.46
February, 2020	228.043	4.24	232.29
March, 2020	(51.03)	106.60	55.57

4.42 Out of the total variation in expense as mentioned in Table above, variation in power purchase expense on account of increased per unit rate is only considered for FAC computation.

Traders/STPP:

4.43 MSEDCL has purchased 170.74 MUs, 117.69 MUs and 248.68 MUs of short-term power in the month January, February and March, 2020, respectively. These short-term power has been procured at an average power purchase cost of Rs. 3.61/kWh, Rs. 3.48/kWh, and Rs. 2.83/kWh during the respective period as shown in Table below:

Month	Source Name	Quantum Purchased (Mus)	Cost of Power Purchase (Rs. in Crores)	APPC
January, 2020	Exchange	170.74	61.72	3.61
February, 2020	Exchange	117.69	40.97	3.48
March, 2020	Exchange	248.68	70.40	2.83

- 4.44 It is to be noted that the Commission in its MTR Order has not considered any quantum and amount with regards to short term power purchase, as the entire demand would have been considered to meet through projected sources of power. Hence, the same is not considered in the energy balance for each year of the 3rd Control Period by the Commission. However, the Commission had allowed MSEDCL to procure short-term power in case of any shortfall from approved sources or when demand exceeds availability. The Commission directed MSEDCL to procure short term power in line with MoP guidelines vide Resolution dated 15 May, 2012 through competitive bidding route, except in case of power procured from the Power Exchanges or under the Banking mechanism. Accordingly, the Commission had approved a ceiling rate of Rs. 5.00 per kWh for power procurement from short-term sources over the 3rd Control Period.
- 4.45 Further, the Commission has asked MSEDCL to justify the procurement of short term power even having sufficient tied up contracted capacity. In response to above query MSEDCL stated that, In the months of January 2020 to March 2020, due to the winter effect the demand during night period was less and being Rabi Crop seasons, the Agricultural pumping demand was more during the day period; hence there was a demand gap of around 3000 to 4000 MW between night and day demands during these months. The demand of MSEDCL is generally catered by scheduling the power from its long term contracted generating sources. The power from long term thermal generators, i.e., stations under MoD, is scheduled as per the MOD stack according to the power requirement. In order to cater the peak demand, generally during day period in these months, instead of taking zero schedule units on bar for RTC period, MSEDCL procured power for some blocks in a day from power exchanges as and when required and feasible to MSEDCL.
- 4.46 MSEDCL further stated that, in the last week of March 2020, Lockdown was imposed by Central Government for prevention of Pandemic COVID-19 which led to drastic decrease in demand around 5000 to 6000 MW. Furthermore, the nationwide lockdown impacted the power requirement in the country and the rate in exchanges were on lower side. MSEDCL has taken advantage of the cheaper rates in exchanges and given additional zero schedule to contracted generating stations by purchasing power from exchanges.
- 4.47 MSEDCL also submitted the daily obligation report of above short-term purchase issues by the power exchanging showing the daily short-term power purchase quantum details. Further, as the power from short-term sources has been procured by MSEDCL below the ceiling rate of Rs.5/kWh, the Commission has considered the respective actual quantum and the cost as submitted by MSEDCL. However, MSEDCL is directed to submit detailed

cost benefit analysis justifying the purchase of short-term power instead of taking zero schedule units on bar for RTC period during final truing up of FY 2019-20.

Must Run Sources

4.48 The sources of Must Run Stations include KAPP, TAPP 1&2, TAPP 3&4, SSP, Pench, Dodson I and Dodson II, Non-Conventional Energy and MSPGCL Hydro (including Ghatghar) etc.

4.49 MSEDCL has purchased 2,027.89 MUs, 1,935.25 MUs and 1,953.28 MUs from these sources during the month of January, February, March, 2019, respectively as compared to the monthly approved MoD energy stack of 2,616.18 MUs, 2,522.86 MUs and 2,691.85 MUs. The actual quantum of power purchase from Must Run sources is lesser than that of quantum approved in MoD stack for Q4 of FY 2019-20 as per MTR Order.

4.50 The average power purchase cost from these stations during the aforesaid period is Rs. 4.08 /kWh, 4.33 /kWh and Rs. 4.06 /kWh as compared to monthly approved rate (derived based on monthly approved MoD stack) of Rs. 3.87 /kWh, Rs. 3.91 /kWh and Rs. 3.90 /kWh, respectively. A detailed comparison of approved MoD stack against actual purchase from Must Run Stations is shown in Table below:

Source	MTR Approved for January, 2020			Actual for January, 2020			Variation		
	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)
KAPP	92.99	24.36	2.62	98.47	24.49	2.49	5.48	0.13	(0.13)
TAPP 1&2	97.14	11.51	1.19	38.69	7.98	2.06	(58.45)	(3.54)	0.88
TAPP 3&4	274.46	89.02	3.24	213.96	65.73	3.07	(60.50)	(23.29)	(0.17)
SSP	102.76	21.07	2.05	92.85	19.03	2.05	(9.92)	(2.03)	-
Pench	11.59	2.38	2.05	5.62	1.15	2.05	(5.98)	(1.23)	-
Dodson I	4.37	0.62	1.42	-	0.01	-	(4.37)	(0.61)	(1.42)
Dodson II	5.45	0.75	1.38	-	0.75	-	(5.45)	(0.00)	(1.38)
Renewable Energy Non- Solar	1,297.86	680.20	5.24	859.51	512.10	5.96	(438.35)	(168.10)	0.72
Renewable Energy Solar	395.00	164.19	4.16	317.90	135.36	4.26	(77.10)	(28.83)	0.10
MSPGCL Hydro	334.54	18.89	0.56	400.88	19.90	0.50	66.34	1.01	(0.07)
MSPGCL Lease Rent*	-	-	-	-	41.01	-	-	41.01	-
Total	2,616.18	1,012.98	3.87	2,027.89	827.50	4.08	(588.30)	(185.48)	0.21

Source	MTR Approved for February, 2020			Actual for February, 2020			Variation		
	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)
KAPP	86.99	22.79	2.62	93.67	23.29	2.49	6.68	0.50	(0.13)

Source	MTR Approved for February, 2020			Actual for February, 2020			Variation		
	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)
TAPP 1&2	90.87	10.77	1.19	32.21	6.64	2.06	(58.66)	(4.13)	0.88
TAPP 3&4	256.76	83.27	3.24	271.51	83.41	3.07	14.76	0.13	(0.17)
SSP	96.13	19.71	2.05	88.13	18.07	2.05	(8.00)	(1.64)	-
Pench	10.85	2.22	2.05	4.97	1.02	2.05	(5.87)	(1.20)	-
Dodson I	4.09	0.58	1.42	-	0.29	-	(4.09)	(0.29)	(1.42)
Dodson II	5.10	0.75	1.47	-	0.75	-	(5.10)	(0.00)	(1.47)
Renewable Energy Non- Solar	1,271.98	666.63	5.24	831.94	489.10	5.88	(440.04)	(177.53)	0.64
Renewable Energy Solar	387.13	160.92	4.16	366.82	154.92	4.22	(20.30)	(6.00)	0.07
MSPGCL Hydro	312.96	18.89	0.60	245.99	19.02	0.77	(66.97)	0.12	0.17
MSPGCL Lease Rent*	-	-	-	-	41.01	-	-	41.01	-
Total	2,522.86	986.53	3.91	1,935.25	837.51	4.33	(587.61)	(149.02)	0.42

Source	MTR Approved for March, 2020			Actual for March, 2020			Variation		
	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)	Quantum (Mus)	PP Cost (Rs. Cr)	Rate (Rs./kWh)
KAPP	92.99	24.36	2.62	101.38	25.35	2.50	8.39	0.99	(0.12)
TAPP 1&2	97.14	11.51	1.19	43.87	9.05	2.06	(53.27)	(2.46)	0.88
TAPP 3&4	274.46	89.02	3.24	301.29	92.55	3.07	26.83	3.54	(0.17)
SSP	102.76	21.07	2.05	58.91	12.08	2.05	(43.85)	(8.99)	-
Pench	11.59	2.38	2.05	1.44	0.29	2.05	(10.16)	(2.08)	-
Dodson I	4.37	0.62	1.42	8.08	1.28	1.58	3.70	0.66	0.17
Dodson II	5.45	0.75	1.38	-	0.75	-	(5.45)	(0.00)	(1.38)
Renewable Energy Non- Solar	1,355.88	710.60	5.24	748.63	422.45	5.64	(607.24)	(288.15)	0.40
Renewable Energy Solar	412.66	171.53	4.16	400.82	168.70	4.21	(11.84)	(2.83)	0.05
MSPGCL Hydro	334.54	18.89	0.56	288.86	18.86	0.65	(45.68)	(0.03)	0.09
MSPGCL Lease Rent*	-	-	-	-	41.01	-	-	41.01	-
Total	2,691.85	1,050.72	3.90	1,953.28	792.37	4.06	(738.57)	(258.35)	0.15

*Lease rent was not included in power purchase cost under MTR Order

4.51 As can be seen from the above Table, there is a significant variation in actual quantum purchased from the RE sources vis-à-vis the approved quantum in MTR Order. In response to clarification sought, MSEDCL stated that lower generation from RE sources are mainly due to low wind season during the respective period. Further, co-generation plants were also shut down early due to less sugarcane production on account of flooding.

4.52 Although, the must run power has been procured at a price approved by the respective Commission and as per PPA terms, the weighted average power purchase cost has

impacted due to variation in the actual energy draw from various must run sources as compared to MTR approved quantum. It is to be noted that the approved energy charges of various sources in the total must-run portfolio ranges from Rs. 0.56/kWh to Rs. 5.24/kWh. The weighted average power purchase cost (Rs./kWh) is arrived by multiplying the weights associated with each source by the approved energy charges. Therefore, when the quantum and hence, weight of costlier approved sources in the overall must run portfolio is higher, the weighted average power purchase cost (Rs./kWh) driven towards approved price of costlier sources and vice-versa. In case of MSEDCL, the variable charge approved for the Renewable Non-solar/Solar sources are highest whereas, for MSPGCL Hydro the approved variable charges are lowest. The Table below shows the percentage share of Must sources during Q4 of FY 2019-20:

Particular	January, 2020			February, 2020			March, 2020		
	MUs	Avg. Rate (Rs./kWh)	% Share	MUs	Avg. Rate (Rs./kWh)	% Share	MUs	Avg. Rate (Rs./kWh)	% Share
Renewable Energy Non- Solar	859.51	5.96	42%	831.94	5.88	43%	748.63	5.64	38%
Renewable Energy Solar	317.90	4.26	16%	366.82	4.22	19%	400.82	4.21	21%
MSPGCL Hydro	400.88	1.52	20%	245.99	2.44	13%	288.86	2.07	15%
Others Must Run	449.58	2.65	22%	490.49	2.72	25%	514.98	2.74	26%
Total	2,027.89	4.08	100%	1,935.25	4.33	100%	1,953.28	4.06	100%

4.53 It can be seen from the above Table that, during the month of January to March, 2020 the % share of costlier approved Non-Solar sources is highest in overall portfolio; ranging from 38% and 43%. Also, from the Table above, more than 50% of total must run power has been procured from RE Non-Solar and Solar sources having weighted average power purchase price ranging from Rs. 4.21/kWh to Rs. 5.96/kWh. This has led to increase in an overall APPC from must run sources as compared to MTR approved price.

4.54 Also, in case of MSPGCL's Hydro stations, the approved power purchase rate was lowest in the total must run portfolio, i.e., Rs. 0.56/kWh. However, in addition to power purchase cost and annual fixed charges, MSEDCL also needs to pay monthly lease rent (Rs. 41.01 Cr per month) to MSPGCL's hydro stations as per PPA terms. This lease rent was not part of power purchase cost approved in MTR Order. Hence, the actual landed power purchase cost has been higher for MSPGCL's hydro power during aforesaid period as compared to MTR approved price. This has also impacted the actual APPC from must run sources. The Commission has verified the aforesaid purchase from must run sources from the invoices submitted and found to be in order.

Interstate

4.55 MSEDCL has considered 1.38 MUs, 1.52 MUs and 1.09 MUs of Inter-state Power purchase from MPEB in the FAC computation for the month of January, February and

March, 2020. The cost associated to the above mention transaction was Rs. 0.77 Crore, Rs. 0.83 Crore and Rs. 3.56 Crore, respectively as shown in Table below:

Month	Net Quantum Purchased (MUs)	Net Cost of Power Purchase (Rs. in Crores)	APPC Rs/kWh
January-2020	1.38	0.77	5.57
February-2020	1.52	0.83	5.47
March-2020	1.09	3.56*	32.61

**includes payment of fixed charges from August, 2017 to February, 2020*

4.56 MSEDCL was asked to provide the details of above-mentioned interstate transaction from MPEB. In response, MSEDCL has stated that, aforesaid power is been supplied from neighbouring state (i.e., Madhya Pradesh) to some consumers of border villages of Amravati and Nagpur in Maharashtra. Similarly, MSEDCL is also supplying power to some consumers in areas bordering Maharashtra but outside the State. These arrangements between MSEDCL and MPEB, were made due to technical constraints in releasing power supply from their own distribution system. MSEDCL has considered the net quantum and cost associated to above mentioned transaction in the FAC computation. MSEDCL further stated that power purchase form MPEB is UI/DSM transaction and clarified that cost towards such a transaction has also been approved by the Commission in recent MYT Order during final truing up of FY 2018-19 (Table 4-33 MERC Order on Case No. 322 of 2019). MSEDCL has also provided the details of the quantum of power supplied to the MPEB's consumer and power supplied to the villages in Maharashtra from January, 2020 to March, 2020.

4.57 Also, from the above Table, it was observed that the average price (i.e. Rs. 32.61/kWh) during March, 2020 is significantly higher as compared to other months. In response to clarification sought MSEDCL vide its data gap reply clarified that, the higher average price is on account payment of Rs. 3.55 Crore which was claimed against Fixed charge form August, 2017 to February, 2020. MSEDCL further stated that the aforesaid claimed amount was under dispute, and same has been paid in March, 2020.

Summary of Power Purchase:

4.58 The Table below shows the monthly variation in power purchase from various sources in terms of quantum of purchase, per unit variable charge, per unit fixed charge and average power purchase cost for MSEDCL during Q4 of FY 2019-20.

Particular	Approved for January, 2020						Actual for January, 2020						Variations			
	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)	Fixed Cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)*	Fixed cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. /kWh)	Fixed Cost (Rs. /kWh)	APPC (Rs. /kWh)
	a	b	c	d	e	f= c + e	a	b	c	d	e	f= c + e	a	c	d	e= c + d
MSPGCL	3,722.07	830.85	2.23	728.58	1.96	4.19	3,911.85	1,449.02	3.70	772.29	1.97	5.68	189.78	1.47	0.02	1.49
MSPGCL Hydro	334.54	-	-	18.89	0.56	0.56	400.88	5.74	0.14	55.16	1.38	1.52	66.34	0.14	0.81	0.95
NTPC	2,371.72	356.01	1.50	416.00	1.75	3.26	2,658.39	467.71	1.76	416.54	1.57	3.33	286.68	0.26	(0.19)	0.07
IPPs	2,551.23	544.56	2.13	353.92	1.39	3.52	2,924.55	664.39	2.27	390.54	1.34	3.61	373.32	0.14	(0.05)	0.09
Solar	395.00	164.19	4.16	-	-	4.16	317.90	135.36	4.26	-	-	4.26	(77.10)	0.10	-	0.10
Non-Solar	1,297.86	680.20	5.24	-	-	5.24	859.51	512.10	5.96	-	-	5.96	(438.35)	0.72	-	0.72
Other Must Run	588.78	148.95	2.53	0.75	0.01	2.54	449.58	118.39	2.63	0.75	0.02	2.65	(139.20)	0.10	0.00	0.11
STPP	-	-	-	-	-	-	170.74	61.72	3.61	-	-	3.61	170.74	3.61	-	3.61
Inter-state	-	-	-	-	-	-	1.38	0.77	5.57	-	-	5.57	1.38	5.57	-	5.57
Total MSEDCL	11,261.19	2,724.75	2.42	1,518.14	1.35	3.77	11,694.79	3,415.20	2.92	1,635.28	1.40	4.32	433.60	0.50	0.05	0.55

*Variable charge inclusive of other charges (Fuel adjustment charges, CIL etc.) for the month of January, 2020.

Particular	Approved for February, 2020						Actual for February, 2020						Variations			
	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)	Fixed Cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)*	Fixed cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. /kWh)	Fixed Cost (Rs. /kWh)	APPC (Rs. /kWh)
	a	b	c	d	e	f= c + e	a	b	c	d	e	f= c + e	a	c	d	e= c + d
MSPGCL	3,778.77	855.64	2.26	728.58	1.93	4.19	4,170.29	1,297.90	3.11	738.09	1.77	4.88	391.52	0.85	(0.16)	0.69
MSPGCL Hydro	312.96	-	-	18.89	0.60	0.60	245.99	4.60	0.19	55.43	2.25	2.44	(66.97)	0.19	1.65	1.84
NTPC	2,347.39	369.79	1.58	416.00	1.77	3.35	2,533.98	523.46	2.07	413.01	1.63	3.70	186.59	0.49	(0.14)	0.35
IPPs	2,386.63	509.95	2.14	353.92	1.48	3.62	3,016.66	731.20	2.42	364.95	1.21	3.63	630.02	0.29	(0.27)	0.01
Solar	387.13	160.92	4.16	-	-	4.16	366.82	154.92	4.22	-	-	4.22	(20.30)	0.07	-	0.07
Non-Solar	1,271.98	666.63	5.24	-	-	5.24	831.94	489.10	5.88	-	-	5.88	(440.04)	0.64	-	0.64
Other Must Run	550.79	139.34	2.53	0.75	0.01	2.54	490.49	132.71	2.71	0.75	0.02	2.72	(60.30)	0.18	0.00	0.18
STPP	-	-	-	-	-	-	116.48	40.97	3.52	-	-	3.52	116.48	3.52	-	3.52
Inter-state	-	-	-	-	-	-	1.52	0.83	5.47	-	-	5.47	1.52	5.47	-	5.47
Total MSEDCL	11,035.65	2,702.27	2.45	1,518.14	1.38	3.82	11,774.18	3,375.70	2.87	1,572.23	1.34	4.20	738.53	0.42	(0.04)	0.38

*Variable charge inclusive of other charges (Fuel adjustment charges, CIL etc.) for the month of February, 2020.

Particular	Approved for March, 2020						Actual for March, 2020						Variations			
	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)	Fixed Cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)*	Fixed cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. /kWh)	Fixed Cost (Rs. /kWh)	APPC (Rs. /kWh)
	a	b	c	d	e	f= c + e	a	b	c	d	e	f= c + e	a	c	d	e= c + d
MSPGCL	4,011.49	906.92	2.26	728.58	1.82	4.08	4,220.99	1,272.74	3.02	769.91	1.82	4.84	209.50	0.75	0.01	0.76
MSPGCL Hydro	334.54	-	-	18.89	0.56	0.56	288.86	4.43	0.15	55.44	1.92	2.07	(45.68)	0.15	1.35	1.51
NTPC	2,509.28	393.68	1.57	416.00	1.66	3.23	2,629.49	505.41	1.92	411.21	1.56	3.49	120.21	0.35	(0.09)	0.26
IPPs	2,551.23	544.56	2.13	353.92	1.39	3.52	2,406.34	564.42	2.35	389.62	1.62	3.96	(144.89)	0.21	0.23	0.44
Solar	412.66	171.53	4.16	-	-	4.16	400.82	168.70	4.21	-	-	4.21	(11.84)	0.05	-	0.05
Non-Solar	1,355.88	710.60	5.24	-	-	5.24	748.63	422.45	5.64	-	-	5.64	(607.24)	0.40	-	0.40
Other Must Run	588.78	148.95	2.53	0.75	0.01	2.54	514.98	140.60	2.73	0.75	0.01	2.74	(73.80)	0.20	0.00	0.20
STPP	-	-	-	-	-	-	248.68	70.40	2.83	-	-	2.83	248.68	2.83	-	2.83
Inter-state	-	-	-	-	-	-	1.09	3.56	32.61	-	-	32.61	1.09	32.61	-	32.61
Total MSEDCL	11,763.86	2,876.24	2.44	1,518.14	1.29	3.74	11,459.88	3,152.71	2.75	1,626.94	1.42	4.17	(303.98)	0.31	0.13	0.44

*Variable charge inclusive of other charges (Fuel adjustment charges, CIL etc.) for the month of March, 2020.

4.59 The Table below shows in summary of variation in Quarterly power purchase approved vis-à-vis actual for Q4 of FY 2019-20:

Particular	Approved for Q4 of FY 2019-20						Actual for Q4 of FY 2019-20						Variations			
	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)	Fixed Cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)*	Fixed cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. Cr)	Fixed Cost (Rs. Cr)	APPC (Rs. /kWh)
MSPGCL	11,512.33	2,593.41	2.25	2,185.73	1.90	4.15	12,303.1	4,019.66	3.27	2,280.29	1.85	5.12	790.79	1,426.2	94.56	0.97
MSPGCL Hydro	982.04	-	-	56.68	0.58	0.58	935.73	14.77	0.16	166.03	1.77	1.93	(46.31)	14.77	109.35	1.35
NTPC	7,228.39	1,119.48	1.55	1,248.00	1.73	3.28	7,821.87	1,496.59	1.91	1,240.77	1.59	3.50	593.48	377.11	-7.23	0.22
IPPs	7,489.09	1,599.06	2.14	1,061.75	1.42	3.55	8,347.54	1,960.01	2.35	1,145.11	1.37	3.72	858.45	360.95	83.36	0.17
Solar	1,194.79	496.64	4.16	-	-	4.16	1,085.55	458.98	4.23	-	-	4.23	(109.24)	(37.66)	0.00	0.07
Non-Solar	3,925.72	2,057.43	5.24	-	-	5.24	2,440.09	1,423.65	5.83	-	-	5.83	(1,485.6)	(633.7)	0.00	0.59
Other Must Run	1,728.35	437.24	2.53	2.25	0.01	2.54	1,455.05	391.70	2.69	2.25	0.02	2.71	(273.30)	(45.54)	0.00	0.17
STPP	-	-	-	-	-	-	535.90	173.08	3.23	-	-	3.23	535.90	173.08	0.00	3.23
Inter-state	-	-	-	-	-	-	4.00	5.16	12.91	-	-	12.91	4.00	5.16	0.00	12.91
Total MSEDCL	34,060.70	8,303.27	2.44	4,554.41	1.34	3.77	34,928.85	9,943.61	2.85	4,834.45	1.38	4.23	868.15	1,640.3	280.04	0.46

4.60 From the Table above, there is an increase in power purchase cost amounting to Rs. 1920.38 Crore during Q4 of FY 2019-20 as compared to MTR approved cost. Out of this total Rs. 1640.34 Crore is due to increase in variable cost and remaining Rs. 280.04 Crore is towards fixed cost. Further, there is also increase in corresponding revenue for MSEDCL due to increase in sales and corresponding billing to consumers. During Q4 of FY 2019-20, the total increase in sales is around 211 MUs as compared to MTR approved sales.

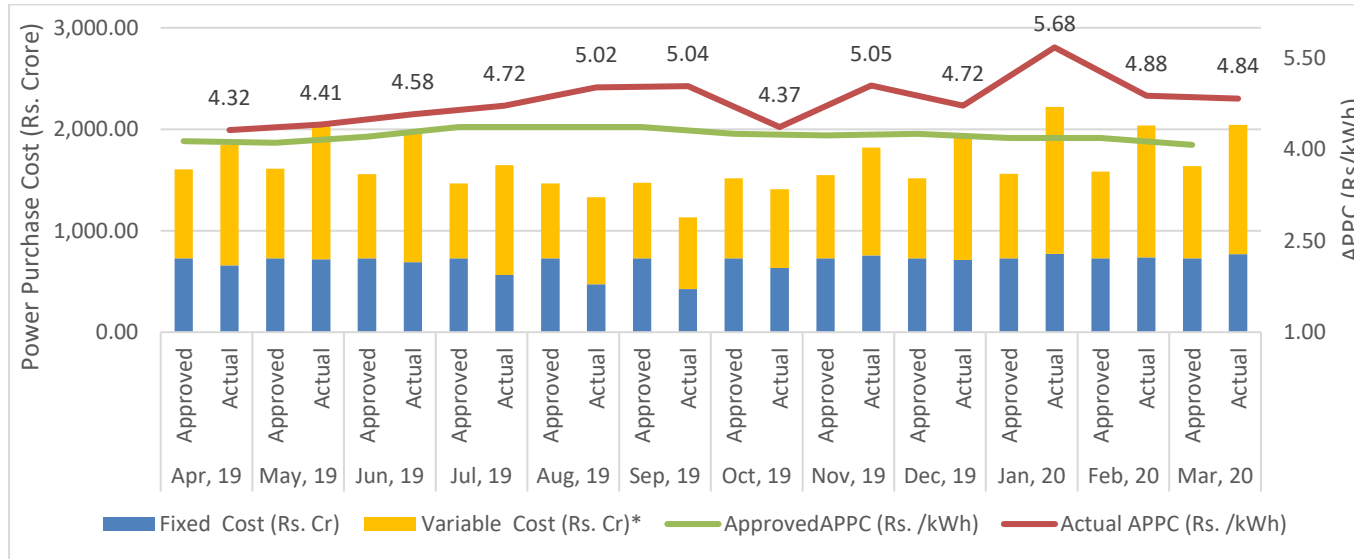
4.61 Therefore, on an overall basis the APPC for the month of January, February and March, 2020 is higher mainly due additional purchase of power from MSPGCL and NTPC's costlier approved sources, revision in quoted tariff from IPPs, due to incorporation of change in law amount in the total power purchase cost in line with the Commission's Order and also due to the variation in power purchase quantum from

must run sources as explained in para above. Accordingly, after complete scrutiny of relevant document submitted, the Commission allows the overall average power purchase cost of Rs. **4.32/kWh** for the month of January, 2020, Rs. **4.20/kWh** for the month of February, 2020 and Rs. **4.17/kWh** for the month of March, 2020 as shown in the Table above.

Yearly Power Purchase Snapshots:

4.62 As graphs below shows the source-wise summary of actual fixed cost, variable cost and APPC vis-à-vis MTR approved fixed cost, variable cost and APPC for FY 2019-20:

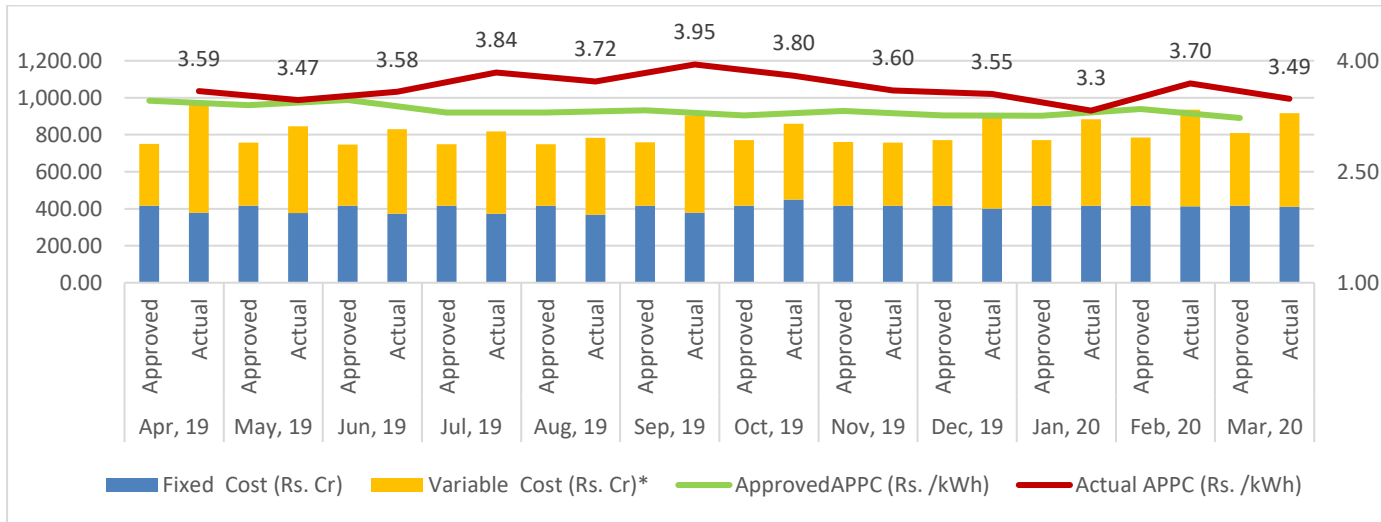
MSPGCL:



Highlights:

- 44,853.24 MUs of power procured from MSPGCL Thermal Generating Stations against MTR approved quantum of 43,875.85 MUs.
- Power purchase cost increased by Rs. 2,905.60 Crore (this include increase in Variable Cost by Rs. 3,736.13 Crore whereas decreased in Fixed Cost by Rs. 830.52 Crore)
- APPC increased from MTR approved value of Rs. 4.23/kWh to Rs. 4.78/kWh, i.e., increased by Rs. 0.56/kWh.

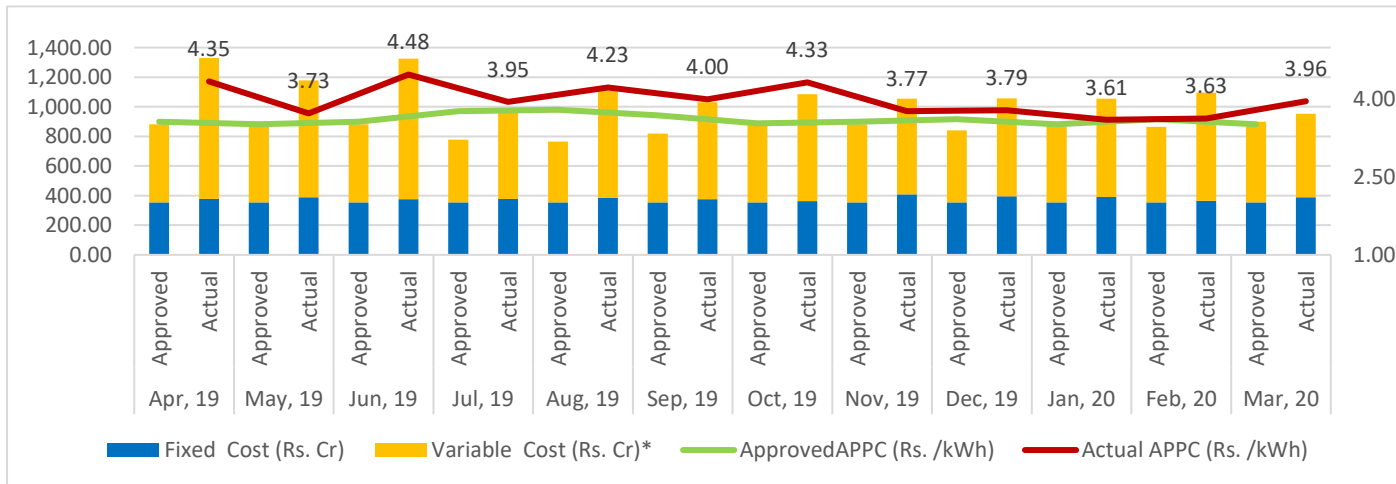
NTPC:



Highlights:

- 28,670.98 MUs of power procured from NTPC Generating Stations against MTR approved quantum of 27,634.24 MUs.
- Power purchase cost increased by Rs. 1,213.56 Crore (this include increase in Variable Cost by Rs. 1,449.87 Crore whereas decreased in Fixed Cost by Rs. 236.31 Crore)
- APPC increased from MTR approved value of Rs. 3.32/kWh to Rs. 3.63/kWh, i.e., increased by Rs. 0.30/kWh.

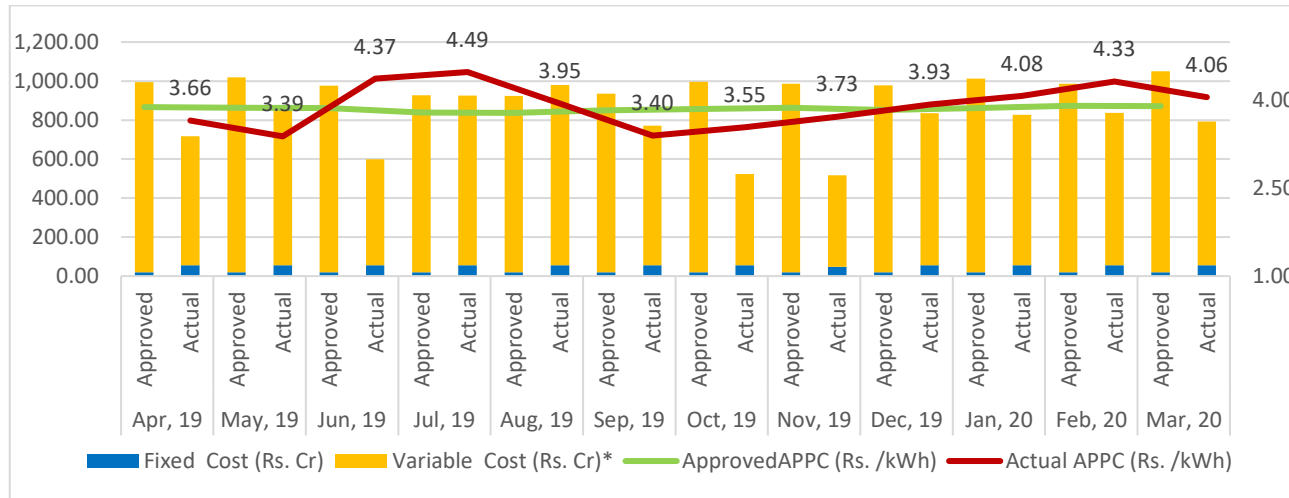
IPPs:



Highlights:

- 33,308.97 MUs of power procured from IPPs against MTR approved quantum of 28,584.92 MUs.
- Power purchase cost increased by Rs. 2,959.23 Crore (this include increase in Variable Cost by Rs. 2,614.21 Crore and increased in Fixed Cost by Rs. 345.02 Crore)
- APPC increased from MTR approved value of Rs. 3.32/kWh to Rs. 3.63/kWh, i.e., increased by Rs. 0.30/kWh.

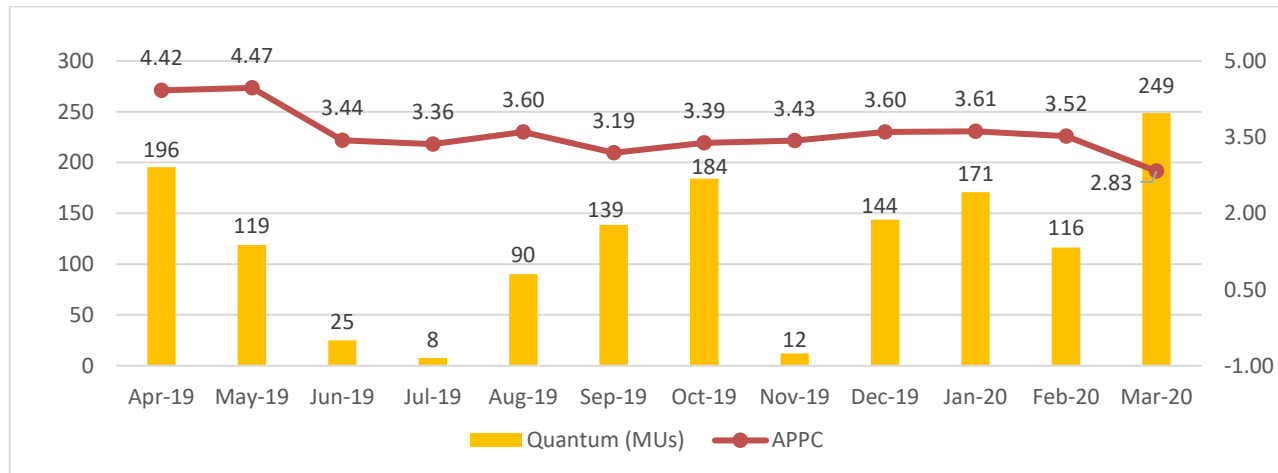
Must Run:



Highlights:

- 23,622.60 MUs of power procured from Must-run sources against MTR approved quantum of 30,536.68 MUs.
- Power purchase cost decreased by Rs. 2,589.09 Crore (this include decrease in Variable Cost by Rs. 3,051.31 Crore whereas an increase in Fixed Cost by Rs. 426.22 Crore)
- APPC marginally increased from MTR approved value of Rs. 3.86/kWh to Rs. 3.89/kWh, i.e., increased by Rs. 0.03/kWh.

STPP:



Highlights:

- No quantum was approved in MTR Order towards STPP.
- MSEDCL has procured STPP power to meet the shortfall and to optimize power purchase cost.
- The actual APPC is below the ceiling price of Rs. 5.00/kWh

4.63 The Table below shows in summary of variation in Annual power purchase approved vis-à-vis actual for FY 2019-20:

Particular	Approved for FY 2019-20						Actual for FY 2019-20						Variations			
	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)	Fixed Cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. Cr)*	Variable Cost (Rs. /kWh)*	Fixed cost (Rs. Cr)	Fixed charge (Rs. /kWh)	APPC (Rs. /kWh)	Quantum (MUs)	Variable Cost (Rs. Cr)	Fixed Cost (Rs. Cr)	APPC (Rs. /kWh)
MSPGCL	43,875.85	9,799.75	2.23	8,742.95	1.99	4.23	44,853.23	13,535.88	3.02	7,912.43	1.76	4.78	977.39	3,736.1	(830.5)	0.56
MSPGCL Hydro	3,949.74	-	-	226.69	0.57	0.57	4,478.51	77.98	0.17	652.82	1.46	1.63	528.78	77.98	426.14	1.06
NTPC	27,634.24	4,190.58	1.52	4,992.00	1.81	3.32	28,670.98	5,640.46	1.97	4,755.69	1.66	3.63	1,036.74	1,449.8	(236.3)	0.30
IPPs	28,584.92	6,049.49	2.12	4,247.03	1.49	3.60	33,308.97	8,663.70	2.60	4,592.04	1.38	3.98	4,724.06	2,614.2	345.02	0.38
Solar	4,581.72	1,904.49	4.16	-	-	4.16	3,125.88	1,473.43	4.71	-	-	4.71	(1,455.84)	(431.06)	-	0.56
Non- Solar	15,053.81	7,889.75	5.24	-	-	5.24	9,655.90	5,302.82	5.49	-	-	5.49	(5,397.92)	(2,586)	-	0.25
Other Must Run	6,951.41	1,758.55	2.53	9.00	0.01	2.54	6,362.31	1,683.24	2.65	9.08	0.01	2.66	(589.10)	(75.31)	0.08	0.12
STPP	-	-	-	-	-	-	1,451.50	518.89	3.57	-	-	3.57	1,451.50	518.89	-	-
Inter-state	-	-	-	-	-	-	5.94	5.84	9.84	-	-	9.84	5.94	5.84	-	-
Total MSEDCL	1,30,631.68	31,592.62	2.42	18,217.67	1.39	3.81	1,31,913.22	36,902.25	2.80	17,922.06	1.36	4.16	1,281.54	5,309.6	(295.61)	0.34

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 month as shown in above Tables. The same has been compared with the average power purchase cost derived considering the revised MoD stack values.

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 to March, 2020.

S. No.	Particulars	Units	Jan, 2020	Feb, 2020	Mar, 2020
1	Average power purchase cost approved by the Commission	Rs./kWh	3.77	3.82	3.74
2	Actual average power purchase cost	Rs./kWh	4.32	4.20	4.17
3	Change in average power purchase cost (=2 -1)	Rs./kWh	0.55	0.38	0.44
4	Net Power Purchase	MU	11,694.79	11,774.18	11,459.88
5	Change in fuel and power purchase cost (=3 x 4/10)	Rs. Crore	644.23	445.08	498.82

5.3 Further, MSEDCL during Q2 of FY 2019-20, has proposed revised methodology wherein it has bifurcated the change in fuel and power purchase cost into Agriculture (AG) and Non-Agriculture (Non-AG) categories based on weighted average of ABR and sales. Based on revised bifurcation methodology MSEDCL has re-allocated the FAC from April 2018 to June 2019 and worked out the adjustment of Rs. 912.70 Crore between AG and Non-AG categories. MSEDCL stated that it is adjusting the aforesaid amount by recovering it from Non-AG consumers and refunding the same to AG consumers. Accordingly, MSEDCL in present quarter also has adopted the same approach, i.e., bifurcation based on weighted average of ABR and sales. However, the Commission in previous quarter post facto approval has not accepted the approach proposed by MSEDCL and has continued with its earlier adopted approach of bifurcation which was based on corresponding monthly sales only. Thus, in present FAC approval also, the Commission has continued with the same approach as adopted in previous post facto approvals.

5.4 Accordingly, the Commission has bifurcated the monthly change in power purchase cost as computed above into the Agriculture and non-Agriculture categories. The Commission has considered the ratio of actual AG and non-AG sale for the respective months for which FAC is computed to bifurcate the power purchase cost variation as shown in the Table below.

Particulars	Unit	January, 2020		
		Total	Ag	Non-Ag
Category wise sales during the month	MUs	8,737.77	2,256.20	6,481.57

Particulars	Unit	January, 2020		
		Total	Ag	Non-Ag
Change in Fuel cost and power purchase cost attributable to Sales within the License Area (F)	Rs. Crore	644.23	166.35	477.88

Particulars	Units	February, 2020		
		Total	Ag	Non-Ag
Category wise sales during the month	MUs	8,551.22	2,256.20	6,295.02
Change in Fuel cost and power purchase cost attributable to Sales within the License Area (F)	Rs. Crore	445.08	117.43	327.65

Particulars	Units	March, 2020		
		Total	Ag	Non-Ag
Category wise sales during the month	MUs	7,748.23	2,187.61	5,560.62
Change in Fuel cost and power purchase cost attributable to Sales within the License Area (F)	Rs. Crore	498.82	140.84	357.99

6 Adjustment for over recovery/under recovery (B)

6.1 Adjustment factor pertains to any under-recovery or over-recovery of FAC amount associated with previous months. MSEDCL has calculated adjustment factor for over recovery / under recovery by considering previous quarter FAC allowed to be recovered as per its own computation. As this is a post facto approval, hence, the Commission has recomputed adjustment factor by considering the FAC cost allowed to be recovered as approved in previous quarter FAC approval. The incremental cost actually recovered has been considered as submitted by MSEDCL and accordingly, the adjustment factors have been computed.

6.2 Accordingly, the adjustment factor for over recovery/under recovery (B) for the period of January, 2020 to March, 2020 is as below.

S. No.	Particulars	Units	January, 2020		February, 2020		March, 2020	
			Ag	Non-Ag	Ag	Non-Ag	Ag	Non-Ag
1.1	Incremental cost allowed to be recovered in Month n-4	Rs. Crore	NIL*	225.37	NIL*	82.13	698.42	34.46
1.2	Incremental cost in Month n-4 actually recovered in month n-2	Rs. Crore	(0.45)	487.50	(0.03)	539.84	(508.79)	423.39
1.3	Adjustment factor for (over-recovery)/under-recovery (=1.1 - 1.2)	Rs. Crore	0.45	(262.13)	0.03	(457.71)	1,207.21	(388.93)

*Allowable FAC for AG categories for the month of January & February, 2020 is considered cumulatively in the month of March, 2020 as per quarterly billing cycle.

7 Carrying Cost for over recovery/under recovery (C)

7.1 Carrying/Holding cost for under/over recovery has been computed at applicable interest rate during the respective period for the eligible amount. The Commission has computed the carrying cost separately on the adjustment factor as computed above for both Agriculture and Non-Agriculture categories.

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

S. No.	Particulars	Units	January, 2020		February, 2020		March, 2020	
			Ag Category	Non-Ag Category	Ag Category	Non-Ag Category	Ag Category	Non-Ag Category
1	Adjustment factor for over-recovery/under-recovery	Rs. Crore	0.45	(262.13)	0.03	(457.71)	1,207.21	(388.93)
2	Applicable Interest rate	%	9.40	9.40	9.35	9.35	9.25	9.25
3	Carrying cost for over-recovery/under-recovery	Rs. Crore	0.01	(4.11)	0.00	(7.13)	18.61	(6.00)

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.

“10.8 The 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.

Sr. No	Particular	Calculation	Unit	Approved in Tariff Order	Cumulative up to		
					Jan'20	Feb'20	Mar'20
1	Net Energy requirement at T\leftrightarrowD Periphery	a	MU	1,29,507	1,04,971	1,16,433	1,27,752
2	EHV Sales	b	MU	8,549	7,522	8,227	8,845
3	Net Energy Available for Sale at 33kV	c=a-b	MU	1,20,957	97,449	1,08,206	1,18,908
4	Energy injected and drawn at 33kV	d	MU	488	399	457	512
5	Total Energy Available for Sale at 33kV	e=c+d	MU	1,21,445	97,848	1,08,663	1,19,420
6	LT Agriculture Sales (Including D.F)	f	MU	31,149	22,891	25,124	27,357
7	LT Sales excluding Agriculture Sales (Including D.F)	g	MU	41,016	33,421	36,259	38,887
8	HT Sales excluding EHV level sales (Including D.F)	h	MU	27,654	23,619	26,008	27,900
9	HT/LTIP Credit Sales and HT/LT Offset Export Solar units	i	MU	-	608	660	724
10	Total Sales including D.F (Excluding EHV Sales)	j=f+g+h+i	MU	99,820	80,538	88,051	94,868
11	OA sales	k	MU	5,523	2,796	3,074	3,320
17	Retail Energy Sale to Consumers (Excluding EHV Sales and Including OA Sales)	l=j+k	MU	1,05,342	83,335	91,125	98,188
18	Distribution Loss (Excl. EHV Sales)	m=e-l	MU	16,103	14,513	17,538	21,231
19	% Distribution Loss (Excl. EHV Sales)	n=m/e	%	13.26%	14.83%	16.14%	17.78%
20	Excess Distribution loss = [Actual Distribution loss - Distribution loss approved] x Net Energy Input		MU	-	167	311	486

8.3 The cumulative distribution losses for the month of January, February and March, 2020 is 14.83%, 16.14% and 17.78%, respectively, as compared to MTR approved losses of 13.26%. The cumulative distribution losses of MSEDCL for the all the months of Q4 period was higher as compared to the approved losses. Accordingly, excess distribution losses (MUs) has been worked out for Q4 period as shown in Table above and corresponding amount disallowed from monthly allowable FAC.

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	January, 2020		February, 2020		March, 2020	
			Ag	Non-Ag	Ag	Non-Ag	Ag	Non-Ag
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	166.35	477.88	117.43	327.65	140.84	357.99
1.2	Carrying cost for over-recovery/under-recovery (C)	Rs. Crore	0.01	(4.11)	0.00	(7.13)	18.61	(6.00)
1.3	Adjustment factor for over-recovery/under-recovery (B)	Rs. Crore	0.45	(262.13)	0.03	(457.71)	1,207.21	(388.93)
1.4	ZFAC = F+C+B	Rs. Crore	166.80	211.64	117.46	(137.19)	1,366.66	(36.94)
1.5	ZFAC = F+C+B January'20 for AG Category	Rs. Crore					163.61	
1.6	ZFAC = F+C+B February'20 for AG Category	Rs. Crore					113.18	
1.7	Total ZFAC (Quarterly) for AG Category	Rs. Crore					1,643.45	
1.8	FAC charged for the billing months	Rs. Crore	-	211.64	-	(137.19)	1,643.45	(36.94)
2.0	Calculation of FAC Charge							
2.1	Energy Sales within the License Area	MU	2,256.20	6,481.57	2,256.20	6,295.02	2,187.61	5,560.62
2.2	Energy Sales within the License Area to AG consumers during last quarter	MU					6,700.01	
2.3	Excess Distribution Loss	MU	43.13	123.92	82.18	229.28	137.24	348.84
2.4	ZFAC per kWh	Rs./kWh	0.74	0.33	0.52	-0.22	6.25	(0.07)
2.5	ZFAC per kWh Quarterly for Ag	Rs./kWh					2.45	
2.6	20% Cap of Variable component	Rs./kWh	1.14	1.14	1.14	1.14	1.14	1.14
2.7	FAC Charge allowable in billing month	Rs./kWh	0.74	0.33	0.52	(0.22)	1.14	(0.07)
3.0	Recovery of FAC							
3.1	Allowable FAC [(2.7 x 2.1)/10]	Rs. Crore	166.80	211.64	117.46	(137.19)	249.13	(36.94)

S. No	Particulars	Units	January, 2020		February, 2020		March, 2020	
			Ag	Non-Ag	Ag	Non-Ag	Ag	Non-Ag
3.2	FAC disallowed corresponding to excess Distribution Loss [(2.2 x 2.5)/10]	Rs. Crore	3.19	4.05	4.28	-	15.63	-
4.0	Total FAC based on category wise and slab wise allowed to be recovered	Rs. Crore	163.61	207.60	113.18	(137.19)	233.50	(36.94)
5.0	Carried forward FAC for recovery during future period (1.4-3.2-4)	Rs. Crore	-	-	-	-	1,394.32	-

9.2 From the Table above it can be seen that standalone FAC for Non-Agriculture category during the months of January, February and March, 2020 is Rs. 207.60 Crore, Rs (137.19) Crore and Rs. (36.94) Crore, respectively. As the billing of the Non-Agriculture category has been done on monthly basis, hence, based on total monthly energy sales & excess distribution losses if any, FAC per unit for Non-Agriculture category has been work out as Rs 0.33/kWh, Rs (0.22)/kWh and Rs (0.07)/kWh for the months of January, February and March, 2020 respectively

9.3 The following Table shows the difference in FAC as claimed by MSEDCL and as approved by the Commission for Non-Ag category:

Month	Units	MSEDCL's claim	Approved by the Commission
		Non-Ag	Non-Ag
January, 2020	Rs. Crore	572.61	207.60
February, 2020	Rs. Crore	436.27	(137.19)
March, 2020	Rs. Crore	463.27	(36.94)
Total	Rs. Crore	1472.15	33.46

9.4 From the Table above MSEDCL has to recover Rs. 33.46 Crore cumulatively for Q4 of FY 2019-20, however, it has actually calculated recovery of Rs. 1472.15 Crore. Hence, MSEDCL is required to refund the differential amount Rs. (1,438.69) Crore along with the interest to consumers.

9.5 The total FAC for Agriculture category for the months of January, February and March, 2020 is Rs. 163.61 Crore, Rs. 113.18 Crore and Rs.1,366.66 Crore respectively. Based on total monthly energy sales for Agriculture category including un-metered sales and excess distribution losses, FAC per unit for Agriculture category has been work out as Rs 0.74/kWh, Rs 0.46/kWh and Rs 6.25/kWh for the months of January, February and March, 2020 respectively. Further, as the billing for Agriculture consumers are done on a quarterly basis and the corresponding FAC for all the three months are levied in a last month of the quarter (i.e. on March, 2020). Therefore, the Commission has considered

the cumulative FAC and the cumulative sales during the respective quarter and accordingly computed the FAC per unit for Agriculture category as Rs. 2.45/kWh.

9.6 Also, 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:

9.7 As the FAC per unit computed mainly for AG consumer is higher than the 20% cap specified in Regulation as shown in Table above. This is mainly due to cumulative effect of disallowance of FAC bifurcation methodology which was proposed by MSEDCL during Q2 of FY 2019-20. Although, the effect of disallowance of FAC bifurcation methodology also prevails for Non-Ag categories too, but due to their monthly billing cycle the same has spread across the months and hence, gets normalised. Further, considering the higher per unit FAC, there is restriction triggered with regards to such ceiling for Agriculture category for the months of March, 2020. Based on such a ceiling per unit FAC has been considered as Rs.1.14/kWh instead of Rs. 2.45/kWh and accordingly, allowable FAC after deducting the disallowance due to excess distribution losses has been reworked as Rs. 233.50 Crore. The remaining FAC amount which got unrecovered due to above specified ceiling has been considered as carry forward FAC.

9.8 The following the Table shows the FAC for Agriculture category during the months of January, February and March, 2020:

Month	Units	MSEDCL's claim	Approved by the Commission
		Ag	Ag
January, 2020	Rs. Crore	91.39	163.61
February, 2020	Rs. Crore	64.45	113.18
March, 2020	Rs. Crore	250.44	1351.03*
Total	Rs. Crore	406.28	1627.82

**Total allowed FAC = Stand-alone FAC for March, i.e., Rs. 1,366.66 Crore minus disallowance due to excess distribution loss of Rs. 15.63 Crore*

9.9 From the Table above, MSEDCL has to recover total FAC of Rs. 1,627.82 Crore to Agriculture consumers. However, MSEDCL has calculated recovery of Rs. 406.28 Crore. Accordingly, there is under recovery of Rs.1,221.54 Crore (i.e., Rs. 1,627.82 Cr – 406.28 Rs Cr).

9.10 Considering the refund of Rs. (1,438.69) Crore with regards to Non-Agriculture category and recovery of Rs. 1,221.54 Crore with regards to Agriculture category, the net disallowance of FAC stands at the end of Q4 of FY 2019-20 stands at Rs. (217.15) Crore.

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 = Average Billing Rate / 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 As per the existing billing cycle of MSEDCL, the FAC computed for the month of January, February and March, 2020 is to be levied in the billing month of April, May and June, 2020 respectively. However, the Commission in recent MYT Order has held that prior approval of FAC is required for charging FAC from the first month of first year of the fourth Control Period (i.e., April 2020) onwards. Hence, FAC to be levied from April, 2020 onwards shall be based on respective prior approval of FAC by the Commission.

11 Adjustment for reallocation of FAC

- 11.1 It is to be noted that MSEDCL adopts different billing cycle for its Agriculture and Non-Agriculture consumers. While the Non- Agriculture consumers are billed on monthly basis, the billing to Agriculture consumers happens on quarterly basis, i.e., total FAC for any quarter months get levied at the end month of quarter. Hence, for the first two month of any quarter, the FAC amount pertaining to AG consumers remained un-recovered and cumulatively it gets billed at the last month of quarter. Therefore, in order to clearly identify FAC amount associated with different categories (i.e., AG & Non-AG) the Commission as per in its previous vetting report from December, 2017 had adopted the methodology of bifurcating the FAC amounts into Agriculture (AG) and non-Agriculture (non-AG) categories. The Commission bifurcated each component of FAC, i.e., change in fuel and power purchase cost (F), carrying cost (C) and adjustment factor (B) on the basis of corresponding sales of Agriculture (AG) and non-Agriculture (non-AG) categories.
- 11.2 Further, MSEDCL vide its later dated 15 November, 2019 stated that it has analysed methodology of bifurcating FAC into AG and Non-AG consumers and observed that bifurcating FAC on the basis of sales of respective category is overburdening AG consumers even though it has lower ABR. Accordingly, MSEDCL has proposed to bifurcate FAC to AG and Non-AG consumers based on the weighted average of ABR and sales, in similar line with the determination of consumer Tariff. MSEDCL has re-allocated the FAC from April 2018 to June 2019 based on revised bifurcation methodology and worked out the adjustment of Rs. 912.70 Crore between AG and Non-AG categories. MSEDCL then made five installments (Rs. 182.54 Cr each) of above computed re-allocation adjustment and started recovering the same from Non-AG consumers starting from FAC levy months of November, 2019 to March 2020. The re-allocation FAC adjustment so recovered from Non-AG consumers was then refunded to AG consumers in two quarters, i.e., December, 2019 and March, 2020 as per billing cycle of AG consumers.
- 11.3 However, the Commission in its post facto approval of Q2 of FY 2019-20 has not accepted the above specified approach undertaken by MSEDCL for bifurcating the FAC on the basis weighted average of ABR and sales. The rationale for not accepting the approach proposed by MSEDCL was being that in MYT Regulations 2015, the Commission has provided formula for category wise computation of per unit FAC.
- 11.4 As per the specified formula, the FAC per unit of any individual category is already factored by 'k', i.e., ratio of ABR/ACoS, thereby allocating the FAC over different categories in terms of their ABR and ACoS. In addition to this, the Regulations also specified the capping on per unit FAC, i.e., the monthly ZFAC shall not exceed 20% of the variable component of Tariff. Therefore, the concern of MSEDCL that FAC overburdening the AG consumers is already taken care in the Regulation itself. Hence, the Commission did not find any merit in approach suggested by MSEDCL. Accordingly, the Commission has continued with its earlier approach of bifurcation absolute FAC.

11.5 Also, with respect to the adjustment of Rs. 912.70 Crore, it was observed that MSEDCL has computed the same by re-allocating the FAC pertaining to FY 2018-19 and also upto Q1 of FY 2019-20. As FY 2018-19 is already tried up by the Commission in its MYT Order dated 30 March, 2020, hence, any over-recovery or under-recovery of expenditure and revenue had already been adjusted. Also, as the Commission has not accepted MSEDCL approach of bifurcation, therefore, the Commission didn't find any merit in accepting the adjustment factor of Rs. 912.70 Crore as computed by MSEDCL. Hence, the same was disallowed in the Commission's FAC approval. Accordingly, the Commission in its FAC approval has bifurcated FAC into AG and Non-AG categories based on its earlier adopted approach (i.e., based on their actual sales for respective months of quarter).

11.6 Although, the Commission had disallowed the FAC bifurcation approach and the re-allocation adjustment as proposed by MSEDCL, the corollary effect¹ of the above disallowance could not be provided during FY 2019-20. The main reason was on account of delay in Q2 FAC submission and subsequent data gap reply by MSEDCL. Due to this the approval of Q2 FAC also got delayed and by the time Q2 FAC was approved, the FY 2019-20 was already over.

11.7 Further, MSEDCL has continued to levy FAC to consumers as per its revised bifurcation approach during the subsequent quarters of FY 2019-20. Therefore, the same also needs to be corrected. Accordingly, the Commission has worked out FAC re-allocation adjustment for the FAC amount wrongly levied in the subsequent months of FY 2019-20 as shown in Table below:

Particular	July-19		Aug-19		Sep-19		Oct-19		Nov-19		Dec-19		Total
	Ag	Non Ag	Ag	Non Ag	Ag	Non Ag	Ag	Non Ag	Ag	Non Ag	Ag	Non Ag	
Total ZFAC	385.88		321.99		392.74		359.79		456.35		411.21		
FAC Actually levied by MSEDCL as per revised bifurcation methodology	97.94	287.95	-133.60	455.59	-57.50	450.23	-146.73	506.52	-138.25	594.60	-54.13	465.34	
FAC as per approved bifurcation methodology	97.94	287.95	-91.88	413.86	-34.54	427.28	-115.35	475.15	-99.69	556.04	-14.84	426.05	
Reallocation adjustment	0.00	0.00	-41.73	41.73	-22.96	22.96	-31.37	31.37	-38.56	38.56	-39.29	39.29	±173.9

11.8 Thus, from the above the FAC re-allocation adjustment, due to wrongly levy of FAC by MSEDCL to its Agriculture and Non-Agriculture consumers upto Q1 of FY 2019-20 is Rs. ± 912.70 Crore and for the subsequent quarter of FY 2019-20 is Rs. ±173.91 Crore. Accordingly, the total re-allocation adjustment upto FY 2019-20 stands at Rs. ±1086.62 Crore.

11.9 Regarding the treatment about the total re-allocation adjustment up to FY 2019-20 of Rs. ±1086.62 Crore, the Commission directs that while allowing/computing (prior approval)

¹ (recovery of Rs. 912.70 Crore from AG consumers and refunding the same to Non-AG consumers)

FAC for FY 2020-21, in case the FAC computed is positive, MSEDCL shall not levy the same to Non-AG consumers to the tune of Rs. 1086.62 Crore. However, the same shall be recoverable from AG consumers.

12 Summary

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

Particular	Month	Claimed	Approved	Remarks
FAC (Rs. Cr.) For AG categories	April	91.39	163.61	MSEDCL claimed Rs. 1,878.44 Crores, however approved Rs. 1,661.28. Hence, Rs. 217.15 Crores disallowed
	May	64.45	113.18	
	June	250.44	1351.03	
FAC (Rs. Cr.) For Non-AG categories	April	572.61	207.60	
	May	436.27	(137.19)	
	June	463.27	(36.94)	
Total FAC inclusive of carry forwards (Rs Cr.)	April	664.00	371.21	
	May	500.72	(24.01)	
	June	713.72	1,314.09	
Q1 FAC	Total	1,878.44	1,661.28	

12.2 MSEDCL has computed total FAC of Rs.1,878.44 Cr. against which the Commission has approved Rs. 1,661.28 Cr. thus Rs. 217.15 Cr. is disallowed. As FY 2019-20 is already over and the Commission has also carried out provisional truing up of the same. The above FAC amount shall be reconciled and adjusted at the time of final truing up of FY 2019-20.